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VOLUME FIVE

NUMBER TWELVE

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OFFICIAL ORGAN OF THE NORTHWEST FRUIT GROWERS ASSOCIATION

# BETTER FRUIT

*JUNE, 1911—FRUIT GROWERS' GARDEN EDITION*



"THE ALTON IMPROVED RED RASPBERRY"  
PROPAGATED BY A. O. GILBERTSON, MASON CITY, IOWA

PUBLISHED BY BETTER FRUIT PUBLISHING COMPANY, HOOD RIVER, OREGON

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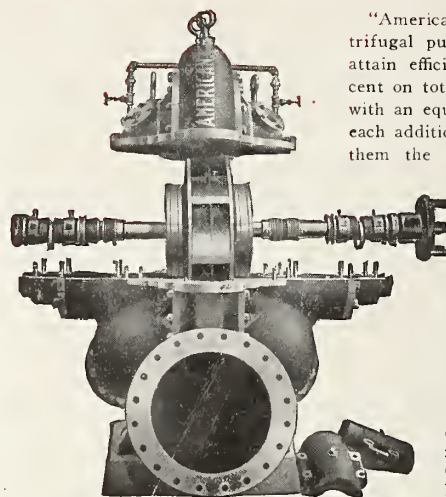
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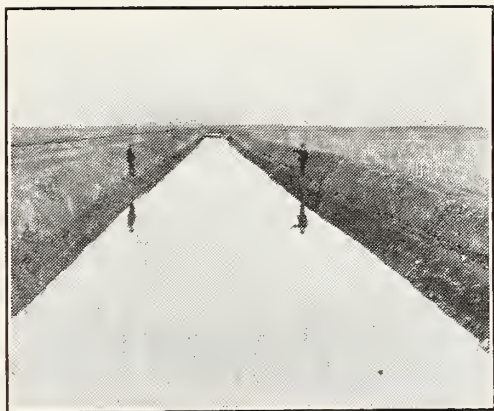
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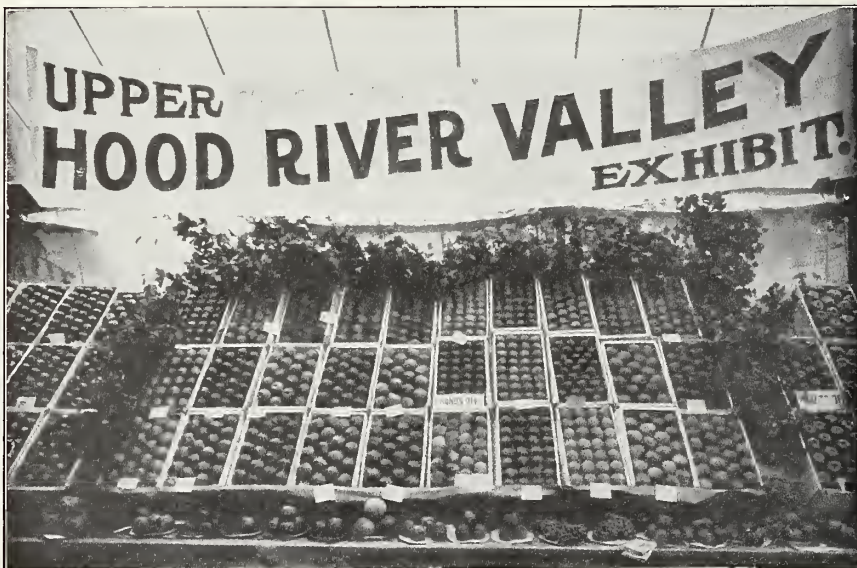
The Spitzenberg car scored, out of a possible 1,000 points, 997. The Newtown car, out of a possible 990 points, scored 988.

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*The above picture shows a prize-winning exhibit of Upper Hood River Valley apples at the Hood River Apple Show*

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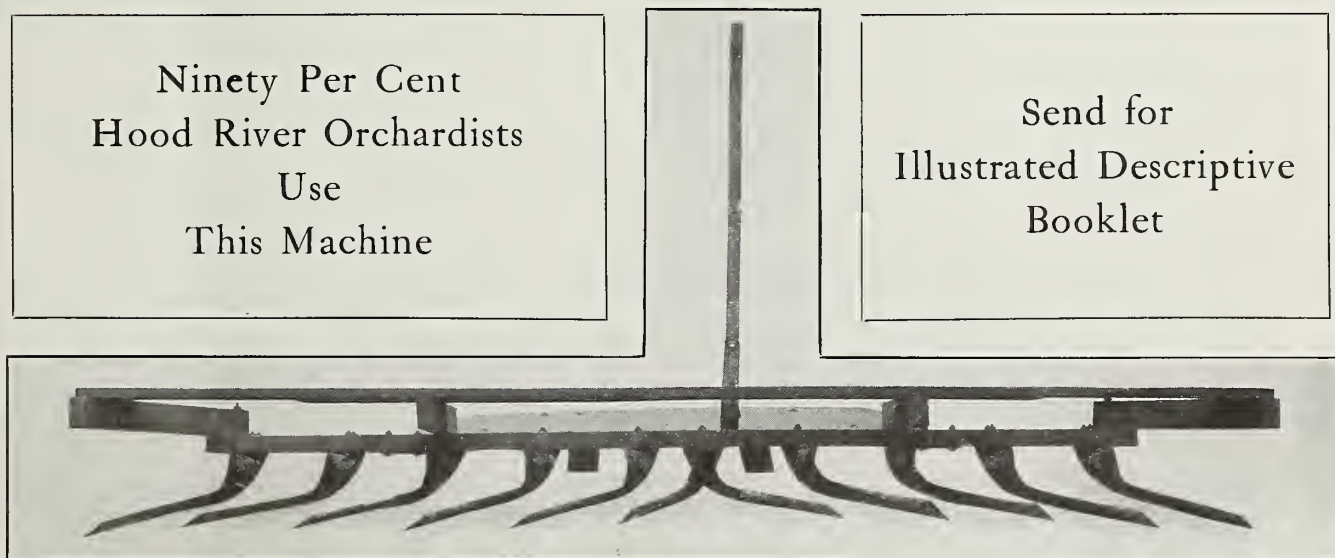


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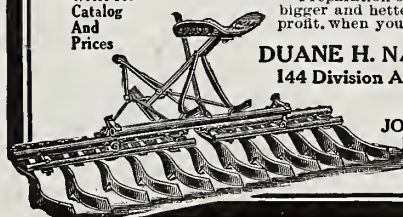
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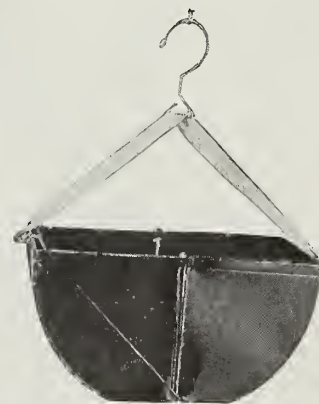
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## The Great Many-Purpose Irrigation Machine

It will cut your drainage ditches;  
Stir your soil; Level your land;  
Cut laterals; Cut your sage-brush;  
Throw up dikes and grade roads;  
Pick up dirt—carry it—and drop it  
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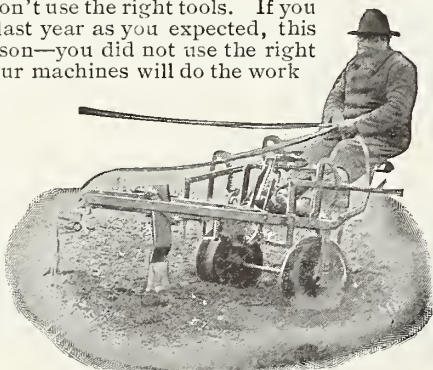
### The Original One-Man Machine

The 20th Century weighs but 600 pounds. One man with two or four horses operates it. Turns in 10-foot circle. Does twice the work of the big, heavy grader with four horses with half the effort.

Mr. Fruit Grower—you can't expect big returns from your work if you don't use the right tools. If you did not do as well last year as you expected, this is probably the reason—you did not use the right tools. If one of your machines will do the work of several expensive ones it means bigger profits at the end of the year.

You shouldn't be without a 20th Century Grader on your place for it has a score of uses.

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1909—Tronson & Guthrie, Eagle Point, Oregon.

1910—C. H. Sproat, Hood River, Oregon.

All sprayed with Grasselli Arsenate of Lead.

Bear in mind that this material was used at three different points, and during three different seasons. Does this not demonstrate to your satisfaction the superiority of Grasselli Arsenate of Lead, both as to locality and climate in which it may be used?

If so, it will not be necessary to ask yourself the question, "What Arsenate of Lead shall I use this season?" You will order Grasselli Brand.

Do not buy Arsenate of Lead on arsenic contents alone. Bear in mind when buying this spray that lead should be given equal consideration with arsenic, because it increases the adhesive properties and reduces to a minimum foliage injury.

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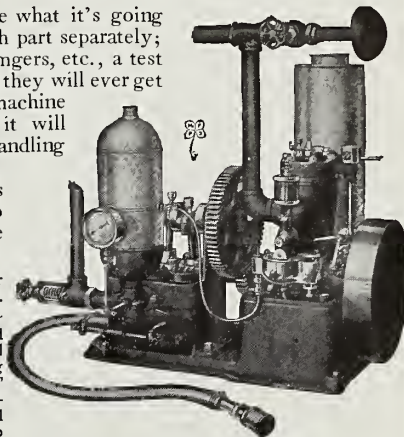
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we give it a *hard* test to see what it's going to do. We first try out each part separately; then we give cylinders, plungers, etc., a test under heavier pressure than they will ever get in actual use. Before the machine leaves us, we *know* that it will endure a lot more hard handling than you're likely to give it.

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First prizes were awarded Deming "Century" Barrel Spray Pump, and Deming "Bordeaux" and "Simplex" Nozzles, at National Horticultural Congress, Council Bluffs, Iowa, November 10 to 19, 1910.



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# Okanogan Irrigation and Improvement Co.

Capital Stock, \$500,000

Project in the very heart of the justly famous fruit belt of Okanogan County, Washington.

Over 15,000 acres of irrigated land below the high line ditches of this Company.

Ten thousand acres of land now under contract, and as much more available for irrigation.

Two thousand square miles of watershed on mountain streams furnish an abundant supply of water.

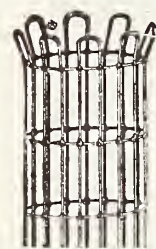
Reservoirs with storage capacity for twice as much water as needed for reserve supply in seasons of possible drouth.

Work on ditches started April 1. Sixty-three teams and men with most modern equipment now digging more than two miles of ditch each week. Company expects to have water in main canal before November 1, 1911.

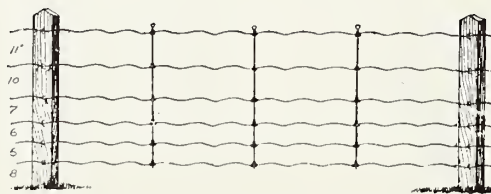
## No Better Fruit Land in the State of Washington

A small block of stock for sale at \$100 per share. Details of plan to furnish choice fruit land with perpetual water right for less than \$100 per acre will be furnished on application to the Spokane office of the Company, 518 Paulsen Building.

## RABBIT TREE GUARD



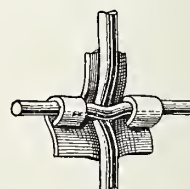
These guards are made of No. 8 galvanized wire. Stay wires 2 inches apart and 18 long. Cost 25c each. Larger sizes to order. Guard will fit any tree up to 10 inches in diameter. To hold the guard in position, press the stay wire 6 inches into the ground.



**ANCHOR FENCE** is built up complete, on the ground, of coil spring wire. Draw in one wire at a time and as many as required; after which bind on the stays of No. 8 wire with the Anchor Clamp. We loan or sell the tools.

## Anchor Clamp

It never slips  
after closing



## Anchor Fence Manufacturing and Construction Works

37 Union Avenue, corner East Pine Street, PORTLAND, OREGON

# Arcadia Irrigated Orchards

The Largest Irrigated Orchard Project in the Northwest

Arcadia is located twenty-two miles from Spokane. Our soil is rich and deep, entirely free from gravel, rock and alkali. Gravity irrigation, excellent transportation, ideal climate, no dust or sand storms.

**OUR PLAN:** We plant, cultivate, irrigate, spray, prune and care for the orchard for four years. Water free. Real estate taxes paid for five years. Over 4,000 acres is now planted to winter apples. You may remain at your present occupation while your orchard is brought to bearing, or, if desired, move onto the land at once.

**TERMS:** \$125.00 first payment secures five acres; \$250.00 first payment secures ten acres; balance monthly. Eight years in which to pay for your orchard. Write for literature.

**ARCADIA ORCHARDS COMPANY, Spokane, Washington**

# "Ortho 40" Zinc Arsenite

We are the **originators** of this arsenical as an insecticide, and consider that it meets a long felt want for a strong poison which is reasonably safe to use on foliage. "Ortho 40" Zinc Arsenite contains over 40 per cent of arsenious oxide, equivalent to 46 to 50 per cent of arsenic oxide in the form of arsenate of lead. It is thus seen to be a close rival of paris green with regard to arsenic content. It is a light, fluffy powder, readily goes into suspension in water, and requires little or no agitation, and affords a very fine covering for the apple against insects. On apples it has been sprayed as heavily as whitewash without the least bit of injury. With the use of this material there are very few, if any, stung apples. This advantage alone will raise the average grade of apples in the Northwest at least 10 per cent. There is no danger of arsenical injury of the soil with this material. The equivalent of 12 cents' worth of poisoning in arsenate of lead can be purchased in this material for five cents, or almost a third of the present price of arsenate of lead.

If you want a material which will control codling worms to greater perfection than you have ever had them controlled before, which will produce no injury in the dry interior valleys of this Coast, and for a price of about one-third of what you are at present paying for arsenate of lead, **THIS IS THE MATERIAL FOR YOU.**

Try ten pounds of it, which will cost you, express prepaid, \$2.50, and if you are not satisfied with your results, upon receipt of such information we will return your money. "Ortho 40" Zinc Arsenite is guaranteed under the United States Insecticide Law of 1910 to contain approximately 40 per cent of arsenious oxide. Write us.

## California Spray-Chemical Company

Manufacturers of Chemical Sprays: Factory, Watsonville, California

Distributors in all the Principal Fruit Growing Sections of the West

## Ogburn's Fruit Gathering Vessels

THIS VESSEL IS INDORSED BY HORTICULTURAL COLLEGES, FRUIT ASSOCIATIONS AND GROWERS.

YOU CANNOT AFFORD TO BE WITHOUT THEM. EACH ONE WILL PAY FOR ITSELF MANY TIMES IN SAVING YOUR CROP.

1911 Vessels equipped with non-shrinkable canvas bottoms, improved fastenings and shoulder strap complete.

Saves money by preventing bruising fruit in handling from tree to box. Saves time by being quick to operate and leaving both hands free to gather with. Money saved is money made.

Especially designed for apples, pears, peaches, oranges, lemons and tomatoes.

Can be used to great advantage in gathering cherries, plums, prunes and grapes. In handling small fruits, place a piece of wrapping paper in the bottom. The canvas bottom slides underneath the paper and delivers the fruit on your packing table without the slightest injury.

This Vessel is an oblong metal pail, black japanned, larger at the bottom than top, equipped with canvas bottom which slides from underneath the fruit, simply laying it on the bottom of the box, or where desired, without disturbing the fruit, the bell-shaped pail lifting off without injuring the fruit in any way.

THE VESSEL HOLDS ONE-HALF BUSHEL OR HALF BOX OF APPLES, AND IN EMPTYING THE SECOND TIME THE CANVAS BOTTOM EASES THE FRUIT IN THE VESSEL ON THAT IN THE BOX WITHOUT BRUISING OR SCRATCHING, WHICH IS PRACTICALLY IMPOSSIBLE WITH THE WOOD OR METAL BOTTOM PAIL.

If your hardware dealer or association haven't this Vessel in stock order direct from factory.

Trade price list furnished merchants and agents by Wheeling Corrugating Company, Wheeling, West Virginia, upon application.

Address all orders to factory.

All goods shipped direct from factory.

Manufactured and Distributed by

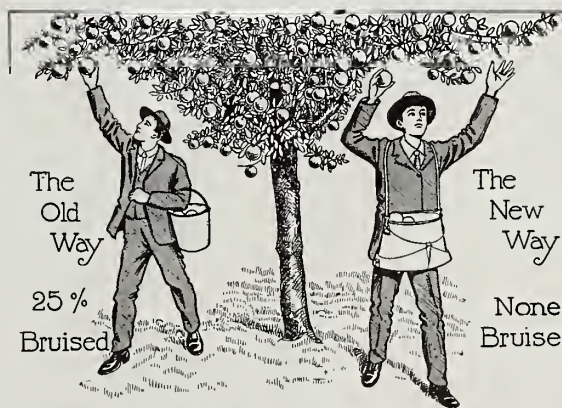
**WHEELING CORRUGATING COMPANY**

Wheeling, West Virginia

For J. H. OGBURN, Patentee  
WENATCHEE, WASHINGTON

Took first prize and gold medal at National Apple Show, Spokane, Washington, November 14 to 19, 1910.

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OLD WAY - 25% BRUISED



NEW WAY - NONE BRUISED

(SPECIAL ORDER BLANK)

CUT OUT ALONG DOTTED LINES

WHEELING CORRUGATING COMPANY

Wheeling, West Virginia

Gentlemen: Please ship me the following order:

.....Ogburn Fruit Gathering Vessels at \$1.50 each, FREIGHT PAID.

.....Ogburn Fruit Gathering Vessels at \$1.75 each, EXPRESS PREPAID.

.....Extra non-shrinkable canvas bottoms with fastenings, 75 cents per set, by prepaid freight or express.

NO FREIGHT ORDER RECEIVED FOR LESS THAN ONE DOZEN VESSELS

Enclosed please find check, draft or money order for \$..... to cover above order.

Write Name and  
Address Clearly

Name.....

P. O.....

State.....

Freight or Express point.....

Neither manufacturer nor patentee are liable for goods after delivery to railway or express company.



# Hood River City Investments

100x100 On Oak Street, with good buildings, rental income \$110 per month, only \$16,000. Liberal terms.

100x200 On Cascade Avenue, consisting of four good lots and frame house. This will double in value within two years. \$7,000. Good terms.

*Combination Orchard and Hay Ranch*—175 acres. 20 acres in orchard from two to fourteen years old, 70 acres in hay produced 100 tons in 1910, balance of land uncleared. Large house and barns, 50 inches irrigating water, all haymaking machinery, near stores and school. \$35,000. Very liberal terms. Big money to be made on this property.

(NOW IS A GOOD TIME TO BUY A HOME)  
(OR BUSINESS PROPERTY IN HOOD RIVER)  
(THERE IS SURE TO BE A BIG ADVANCE IN PRICES)

SEE OUR LIST OF ORCHARDS

**J. H. HEILBRONNER & CO.**

THE RELIABLE DEALERS

HEILBRONNER BUILDING

HOOD RIVER, OREGON

# Mosier View Orchards

The Cream of the Famous Hood River-Mosier Apple District

Five miles southeast of Mosier, overlooking the Columbia River.

2,400 acres, in five, ten and twenty-acre orchards, which in **LOCATION, SOIL, CLIMATE, ALTITUDE, AIR and WATER DRAINAGE**, form a combination of excellence, from the apple grower's standpoint, **NOT EXCELLED ANYWHERE IN THE WORLD.**

The town of Ortley, located on the property, can be reached by drives and boulevards from every orchard.

**SOLD AT A LOW PRICE** and paid for in **SMALL MONTHLY PAYMENTS**, covering a period of five years.

**THE HOOD RIVER ORCHARD LAND COMPANY** (capital \$500,000) develops the property for resident or non-resident investors for a period of five years, bringing it into bearing in the **HIGHEST POSSIBLE STATE OF HORTICULTURAL PERFECTION.**

**THE GREATEST OPPORTUNITY IN THE PACIFIC NORTHWEST** for the professional or salaried man to secure a great money-producing commercial apple orchard for a small sum down and small monthly payments.

WRITE FOR A FREE BOOKLET

**Hood River Orchard Land Company**

906-907-908-909 Yeon Building, Portland, Oregon

DEVLIN & FIREBAUGH, SALES AGENTS



# BETTER FRUIT

A MONTHLY ILLUSTRATED MAGAZINE PUBLISHED IN THE INTEREST  
OF MODERN AND PROGRESSIVE FRUIT GROWING AND MARKETING

## THE FRUIT GROWERS' SMALL VEGETABLE GARDEN

BY W. H. WICKS, AGRICULTURAL EXPERIMENT STATION, MOSCOW, IDAHO

**H**ALF an acre of the horticultural grounds of this station was selected by Professor J. R. Shinn in the spring of 1908 for use as a vegetable garden. This area was maintained for such a purpose for two years. The object of this work was to secure definite data on methods of culture, yield, cost of production and the advisability of maintaining such a garden on the farms of Idaho. This garden was planned to give the greatest possible variety and continuous supply of vegetables as may be readily grown in the home garden, and which are very frequently not grown on account of the supposed expense and time required in their production.

The garden was laid out in the form of a rectangle with rows running lengthwise in order to admit horse cultivation and to reduce the expense of labor to the minimum. The ground was worked as early as advisable in the spring and put in shape for seeding and planting by the most approved method of this region. No fertilizer was applied during the two years of the experiment.

This garden was located on the southwestern slope of one of the hills which comprise the station gardens, and is typical of the average farm and garden land in this region. It is but a short distance to the market center of Moscow, so practically all the produce was delivered to the general market or retailed to parties coming to the garden. This area is so situated that it admits the earliest possible cultivation in spring. It is free from all fall frosts until late in September.

The more desirable locations for vegetable gardens are to be found on the warm slopes of the rolling hills which comprise this country. These aspects are to the east, the south and southwest. In locating the garden care was taken to secure the best possible air and soil drainage, freedom from frost and average soil.

While all vegetables are not adapted to the same kind of soil for their best production, the dark, rich, friable soil that is found in the Palouse region will grow satisfactorily those vegetables which are adapted for culture in a fruit grower's garden. The soil of this garden is friable, deep and retains moisture well when proper surface tillage is given. It washes considerably and puddles readily during severe rain storms. Its texture is exceptionally good and root crops have no difficulty in penetrating to the greatest possible depth. Irrigation is not necessary. No alkali is present to

### Contents

FRUIT GROWERS' SMALL VEGETABLE  
GARDEN, 19

INSECTS AND MITES, 27

TWO DESTRUCTIVE PLANT LICE, 31

FRUIT INDUSTRY OF NORTHWEST, 34

CHERRY HEAVEN, 38

ORCHARD SPRAYS AND SPRAYING, 40

EDITORIAL, 50

FALL BREAKING AND PREPARATION  
OF SEED BED, 65

STANDARDIZING FRUIT, 71

interfere with the growth of vegetables. Due to the physical nature of the soil, its management is comparatively easy. The cost of cultivation in this garden will probably be less than it would be in the case of heavier soils containing a large



PROFESSOR W. H. WICKS  
New Associate Editor of "Better Fruit"  
Professor of Horticulture Idaho Experiment Station  
Moscow, Idaho

percentage of clay, or those that are under irrigation.

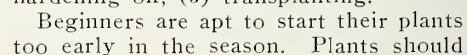
This area was plowed, harrowed and made ready for planting by dragging with a common planker. This is usually all that is necessary to put the soil of this region in first class shape for gardening. Future cultivation is easily accomplished and not expensive. A dust mulch is easily secured after rains, and this kind of mulch is effective in checking evaporation from the soil.

In 1908 the garden was made ready for planting by plowing April 7, harrowing and leveling April 8. The soil worked well at this date. Planting of various vegetables was done as early as advisable. All perennials were planted on one side of the garden, so they could remain for several years without interfering with the growing of annual plants. The plan of planting (see Figure 1), and vegetables used, with space allotted to each kind is given as follows:

Row 1, Conover's Colossal asparagus, one-half row; rhubarb, one-fourth row Wyatt's Victoria, one-fourth row St. Martin's. Row 2, Hollow crown parsnips, one-third row; Emerald parsley, one-third row; Sandwich Island Mammoth salsify, one-third row. Row 3, Prizetaker onions, one-half row; Large Rouen leek, one-fourth row; Australian Brown onion, one-fourth row. Row 4, Golden Self-Blanching celery, one-half row; onions, one-half row. Row 5, Onion sets, one-fourth row; Deacon lettuce, one-fourth row; Long Standing spinach, one-half row. Row 6, Early potatoes, one row; radishes, one-fourth row each of French Breakfast, Celestial, Scarlet Turnip, New White Icicle. Row 7, Peas, Nott's Excelsior. Row 8, Crosby's Egyptian beets, one-fourth row; Blood Red beets, one-fourth row; Golden Ball carrots, one-half row. Row 9, Late potatoes. Row 10, Grand Rapids lettuce, one-fourth row; Giant Fringed endive, one-half row; Improved Guernsey parsnips, one-fourth row. Row 11, Early York cabbage, one-fourth row; Best Early cauliflower, one-fourth row; Fordhook Bush Lima beans, one-fourth row; Burpee Improved Bush Lima beans, one-fourth row. Row 12, Prosperity peas, one-third row; Horsford Early Market, one-third row; Telephone peas, one-third row. Row 13, Extra Early Refugee beans. Row 14, Bismark Black Wax Prolific, one-half row; Dwarf Horticultural beans, one-half row. Row 15, American Drumhead Savoy cabbage, one-half row; Tall Green Curled Scotch kale, one-half row. Row 16, Burpee's Danish Prize brussels sprouts, one-fourth row; Tabasco peppers, sixteen hills; Sweet Upright peppers, twenty hills; Early Freedom tomatoes, one-half row. Row 17, Golden Bantam sweet corn, one-half row; Cory early sweet corn, one-half row. Row 18, Early Long Purple egg plant, one-half row; Sparks Earliana tomatoes, one-half row. Rows 19 to 24, Burpee's Extra Early White Spine cucumber, twelve hills; Early White Bush summer squash, ten hills; Hubbard squash, twelve hills; Small Sugar pumpkin, twelve hills; Cole's Early watermelon, twenty-four hills; Fordhook muskmelon, twenty-six hills. Rows were three feet apart, excepting the vine crops, which were six feet apart.

All seeds were purchased from W. Atlee Burpee & Company, Philadelphia, Pennsylvania. The catalogue prices of 1908 were paid. No seed was saved for sowing in 1909. The cost of seed used in 1909 is listed in the expense account for that year. It is seldom wise for the fruit grower to grow his own seed. While seed growing is attracting much





SPROUTS

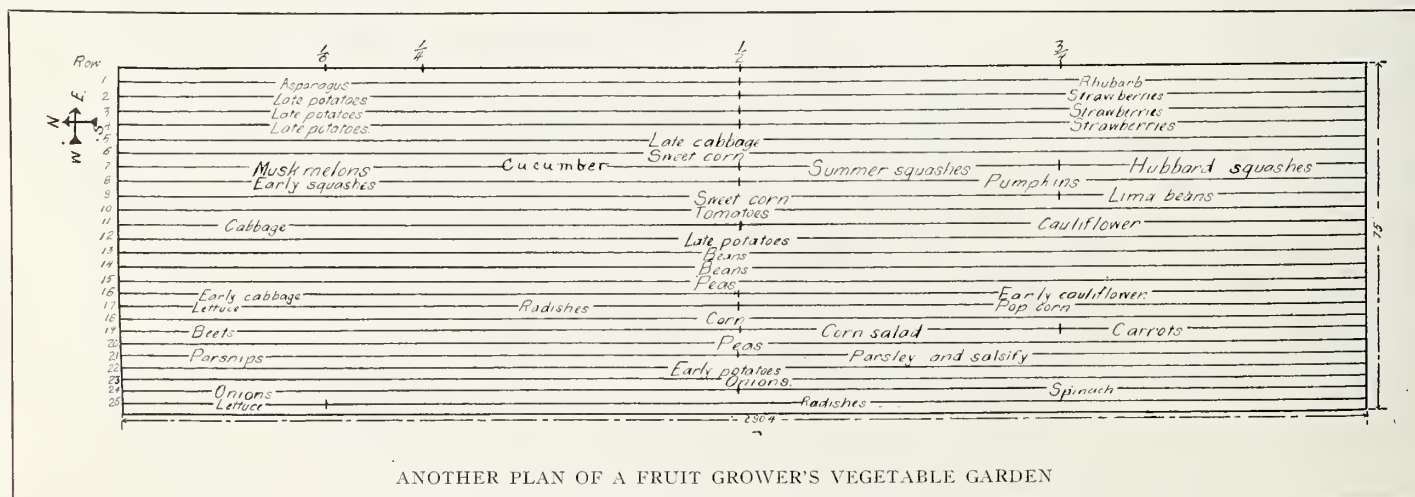






FIGURE 1—ONE-HORSE PLANKER *Photo by C. C. Vincent*

be stocky, strong and vigorous when they leave the frame. If plants are poorly grown or growth retarded very little is gained by the use of a frame.

Succession cropping was carefully practiced both years in this garden. As soon as one crop was gathered another crop was immediately planted. By judicious management three crops can be taken from the same ground in one season. Every effort should be made to utilize the space in the garden at all times. By knowing the habits of the plants used plantings can be made which will give the greatest variety of vegetables on the minimum amount of space.

Cultivation was begun as soon as the rows became well marked. It was continued at frequent intervals throughout the season. Frequent cultivations are necessary to destroy weeds and maintain moisture. It aids materially in liberating plant food by breaking the soil in small particles. A crust should not be allowed to form on the soil in the garden. It is assumed that a fruit grower would do the cultivation at odd times, which would not interfere with the regular work.

Seeds used in the garden for 1908, at a total cost of \$5.55, were as follows:

Asparagus, one ounce Conover's Colossal; beans, one quart Fordhook Bush Lima, one quart Burpee's Improved Bush Lima, two quarts Extra Early Refugee, one quart Bismark Black Wax Prolific, one quart Dwarf Horticultural; beets, one ounce Crosby's Egyptian, one ounce Blood Red; cabbage, one packet Early York, one packet American Drumhead Savoy; carrots, one ounce Golden Ball; cauliflower, one packet Best Early; celery, one packet Golden Self-Blanching; corn, one packet Early Cory, one packet Golden Bantam; cucumber, one packet Burpee's Extra Early White Spine; egg plant, one packet Early Long Purple; endive, one packet Giant Fringed; kale, one packet Tall Green Curled Scotch; leek, one packet Large Rouen; lettuce, one packet Deacon, one packet Grand Rapids; muskmelon, one packet Fordhook; watermelon, one packet Cole's Early; onion, one packet Prizetaker, one packet Australian Brown, two quarts sets; parsnips, one packet Hollow Crown, one packet Improved Guernsey; parsley, one packet Emerald; peas, one quart Prosperity, one quart Nott's Excelsior, one quart Horsford's Early Market, one quart Telephone; peppers, one packet Tabasco, one packet Sweet Upright; potatoes, one-half bushel; pumpkin, one packet Small Sugar; radishes, one packet French Breakfast, one packet Celestial, one packet Scarlet Turnip, one packet New Icicle; rhubarb, Wyatt's Victoria, St. Martins; salsify, one packet Sandwich Island Mammoth; brussels sprouts, one packet Burpee's Danish Prize; squash, one packet Early White Bush Summer, one packet Hubbard; spinach, one ounce Long Standing; tomato, one packet Spark's Earliana, one packet Early Freedom; turnip, one packet Scarlet, one packet New Icicle.

A summary of the labor account of the garden in 1908 gave the following: Team

work, plowing, harrowing and leveling, five hours; work with one horse, cultivating, four and one-half hours; hand work, planting, cultivating, spraying, thinning and weeding, fifty-five and one-half hours; a total of sixty-five hours of labor.

A carefully kept record showed the production and market value of each variety of vegetable grown during the season to be:

Celery, Golden Self Blanching, 213 bunches.	\$11.54
Cabbage, Early York and American Drumhead Savoy, 18 heads.	1.75
Scotch kale, Tall Green Curled, fair supply.	
Peppers, Tabasco and Sweet Upright, 95 specimens	1.20
Tomatoes, Earliana, 142 pounds.	3.55
Cucumbers, Burpee's Extra Early White Spine, 127 slicing and 100 pickling.	3.08
Squash, Summer and Hubbard, 47 specimens	2.04
Pumpkin, Small Sugar, 110 specimens.	6.60
Watermelon, Cole's Early, 2 specimens.	.50
Muskmelons, Fordhook, 6 dozen.	2.10
Egg plant, Early Long Purple, 2 dozen.	.60
Cauliflower, Best Early, 11 heads.	1.10
Salsify, Sandwich Island Mammoth, 25 dozen	2.50
Onions (from sets), Prizetaker and Australian Brown, 20½ dozen.	1.03
Lettuce, Deacon and Grand Rapids, 343 heads	5.76
Spinach, Long Standing, 129 heads.	.50
Potatoes, early and late, 475 pounds.	3.63
Radish, French Breakfast, Celestial and Scarlet Turnip, 34¾ dozen.	10.13
Carrot, Golden Ball, 64 dozen.	3.20
Beet, Crosby's Egyptian and Blood Red, 6½ dozen.	.85
Peas, Horsford's Early Market, Nott's Excelsior and Prosperity, 136 pounds.	6.80
Parsnips, Hollow Crown and Improved Guernsey, good supply, record lost.	
Parsley, Emerald, fair supply.	
Leeks, Rouen, 12½ dozen.	.63
Endive, Giant Fringe, 145 heads.	7.25
Sweet corn, Golden Bantam and Cory Early, 28 ears.	.24
Beans, Extra Early Refugee and Dwarf Horticultural, 43 pounds.	5.61

Total value of produce raised.....\$82.19

To team work, plowing, harrowing and leveling, 5 hours at \$4 per day.	\$ 2.00
To work with one horse, 4½ hours at \$2.50 per day.	1.13
To hand labor, 55½ hours, at \$2 per day.	11.10
To insecticides.	1.00
To garden seeds.	5.55
To raising plants.	4.00

Total expense .....\$25.78

Total net profit .....\$57.41

In 1909 the varieties of vegetables planted, with the space allotted to each, was as follows:

Row 1, Asparagus, one-half row; rhubarb, one-half row. Row 2, Late potatoes, one-half row; strawberries. Row 3, Late potatoes, one-half row; Clark Seeding strawberries. Row 4, Late potatoes, one-half row; Marshall and Senator Dunlap strawberries. Row 5, Late cabbage. Row 6, Golden Bantam sweet corn. Row 7, Burpee's Fordhook

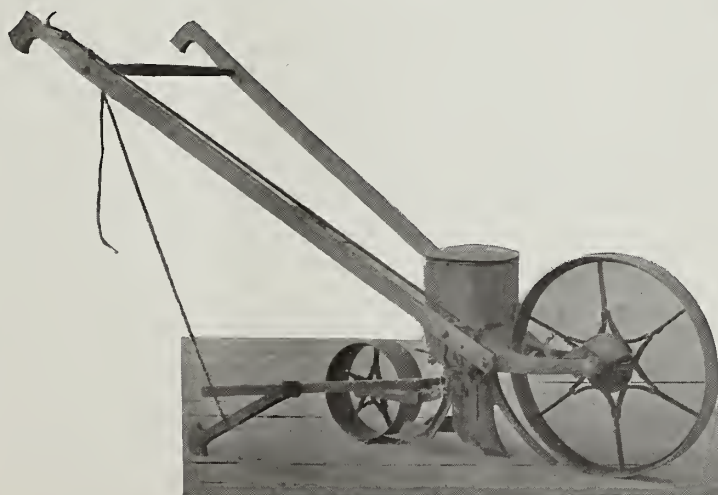


FIGURE 2—PLANET JUNIOR SEED DRILL

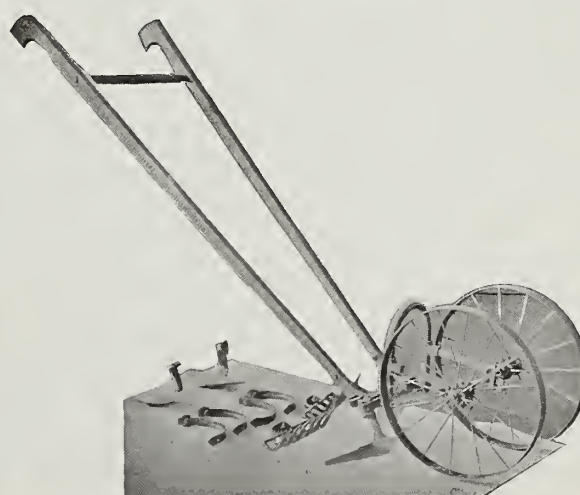


FIGURE 3—WHEEL HOE



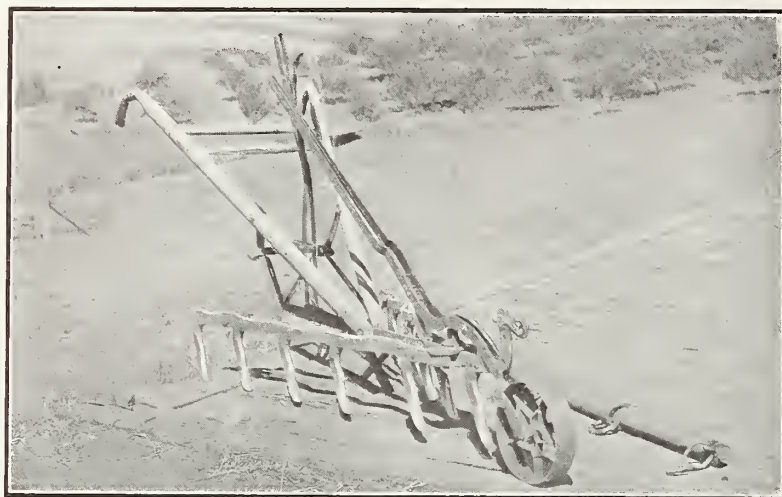


FIGURE 4—NARROW TOOTH CULTIVATOR

muskmelons, one-fourth row; Burpee's Early White Spine cucumber, one-fourth row; Summer squash, one-fourth row; Hubbard squash, one-fourth row. Row 8, Early White squash, one-half row; Small Sugar pumpkin, one-half row. Row 9, Golden Bantam sweet corn, three-fourths row; Dwarf Lima beans, one-fourth row. Row 10, Spark's Earliana tomato, one-half row; Chalk's Early Jewel tomato, one-half row. Row 11, Early York cabbage, one-fourth row; Burpee's Dry Weather cauliflower, one-half row; Surehead cabbage, one-fourth row. Row 12, Late potatoes. Row 13, Improved Refugee beans, one-half row; Extra Early Red Valentine beans, one-half row. Row 14, Burpee's Stringless Greenpod beans, one-half row; Dwarf Horticultural beans, one-half row. Row 15, Prosperity peas, one-third row; Improved Senator peas, one-third row; Mammoth Melting Sugar peas, one-third row. Row 16, Early Jersey Wakefield cabbage, one-half row; Burpee's Best Early cauliflower, one-half row. Row 17, Deacon lettuce, one-eighth row; Dwarf White heart lettuce, one-eighth row; Scarlet Turnip radish, one-fourth row; Burpee's Golden Tom Thumb popcorn, one-half row. Row 18, Crosby's Early Twelve-Rowed corn, one-half row; Burpee's Early Cosmopolitan corn, one-half row. Row 19, Crosby's Egyptian beets, one-fourth row; Edmond's Early beets, one-fourth row; Large Round Leaved corn salad, one-fourth row; Chantenay carrots, one-fourth row. Row 20, Best Extra Early and Nott's Excelsior peas, one-half row each. Row 21, Improved Guernsey parsnips, one-half row; Emerald parsley, 20 feet; remainder, Sandwich Island Mammoth salsify. Row 22, Early potatoes, one row. Row 23, Giant Gibraltar onion seed, one-half row; Red Wethersfield onion seed, one-half row. Row 24, Globe onion sets, one-fourth row; Victoria spinach, one-half row; onion sets, one-fourth row. Row 25, Deacon lettuce, Dwarf White Heart lettuce, Rapid Red radish, French Breakfast radish, Scarlet Button radish, First in Market, one-sixth row each.

Seeds at a total cost of \$4.70 were used during the season of 1909, as follows:

Beans, one packet Dwarf Lima, one packet Burpee's Stringless Greenpod, one packet Extra Early Red Valentine, one packet Improved Refugee, one packet Dwarf Horticultural; beets, one ounce Edmond's Early, one ounce Crosby's Egyptian; cabbage, one packet Burpee's All Head, one packet Early Jersey Wakefield; carrots, one ounce Chantenay; cauliflower, one packet Burpee's Dry Weather, one packet Burpee's Best Early; celery, one packet Golden Self Blanching; corn salad, one packet Large Round Leaved; sweet corn, one packet Golden Bantam, one packet Crosby's Early Twelve-Rowed, one packet Crosby's Early Cosmopolitan; pop corn, one packet Burpee's Golden Tom Thumb; cucumber, one packet Burpee's White Spine; egg plant, one packet Black Beauty; endive, one packet Green Curled; leek, one packet Long Mezieres; lettuce, one packet each Grand Rapids, Deacon, Burpee's Iceberg, Dwarf White Heart; muskmelon, one packet Burpee's Fordhook; onions, one packet each Prizetaker, Red Wethersfield, Burpee's Giant Gibraltar; parsley, one ounce Emerald; parsnip, one ounce Improved Guernsey; peas, one packet each Prosperity, Burpee's Best Extra Early, Nott's Excelsior, Improved Senator, Mammoth Melting Sugar; peppers, one packet each Tabasco and Sweet Upright; pumpkin, one ounce Small Sugar; radishes, one packet each Scarlet Button, Rapid Red, Scarlet Turnip, French Breakfast; salsify, one packet Sandwich Island Mammoth; spinach, one packet Victoria; squash, one packet Early White Bush, one packet Hubbard; tomatoes, one packet each Spark's Earliana, Chalk's Early Jewel, Stone, Dwarf Champion; spearmint, one packet.

A summary of the labor account of the garden for 1909 showed: Team work,

plowing, harrowing and leveling, nine and one-quarter hours; one horse work, cultivating, seven and seven-twelfths hours; hand work, planting, cultivating, spraying, weeding, thinning and layering strawberry runners, thirty and seven-twelfths hours; a grand total of forty-seven and five-twelfths hours of labor.

A carefully kept record of the amount of production in each variety, together with the market value of each, follows:

Beets, Crosby's Egyptian and Edmond's Early, 8 dozen .....	\$ .80
Carrots, Chantenay, 66 dozen .....	3.30
Lettuce, Dwarf White Heart and Deacon, 105 heads .....	2.75
Radish, Scarlet Turnip, Rapid Red, French Breakfast and First in Market, 42 dozen ..	8.10
Peas, Best Extra Early, Prosperity, Improved Senator, Mammoth Melting Sugar and Nott's Excelsior, 238 pounds .....	11.90
Parsnip, Improved Guernsey, 25 dozen .....	1.25
Parsley, Emerald, fair supply .....	
Potatoes, early and late, 1,458 pounds .....	12.15
Popcorn, Burpee's Golden Tom Thumb, 21 pounds .....	1.26
Corn, Crosby's Early Twelve-Rowed and Burpee's Early Cosmopolitan, 32 dozen ..	3.50
Onions (from seed), Giant Gibraltar and Red Wethersfield, 152 pounds .....	1.90
Onions (from sets), Globe, 10 dozen .....	.50
Salsify, Sandwich Island Mammoth, 20 dozen .....	2.00
Beans, Improved Refugee, Extra Early Red Valentine, Burpee's Stringless Green Pod and Dwarf Horticultural, 160 pounds .....	9.60
Sweet Corn, Golden Bantam, 33 dozen .....	3.20
Cabbage, Early Jersey Wakefield and Sure Head, 370 pounds .....	3.70
Cauliflower, Burpee's Dry Weather and Burpee's Best Early, 33 heads .....	1.65
Tomatoes, Spark's Earliana and Chalk's Early Jewel, 422 pounds .....	10.55
Strawberries, Marshall, Haverland, Clark's Seedling and Senator Dunlap (all blossoms removed) .....	
Muskmelon, Burpee's Fordhook, 4 dozen .....	1.35
Cucumber, Burpee's White Spine, 194 slicing, 1243 pickling .....	6.50
Squash, Hubbard and Early White Summer, 170 specimens .....	6.36
Pumpkin, Small Sugar, 147 specimens .....	1.46
Rhubarb, 1½ dozen .....	.15

Total value of product .....

To team work, 9¼ hours at \$4 per day .....	\$ 3.70
To work with one horse, 7½ hours at \$2.50 per day .....	1.90
To hand labor, 30½ hours at \$2 per day .....	6.11
To insecticides .....	1.00
To garden seeds .....	4.70
To raising plants .....	1.75

Total expense .....

Total net profit .....

Using the experience of both seasons the following cultural suggestions on farm garden crops, with recommended varieties, are offered:

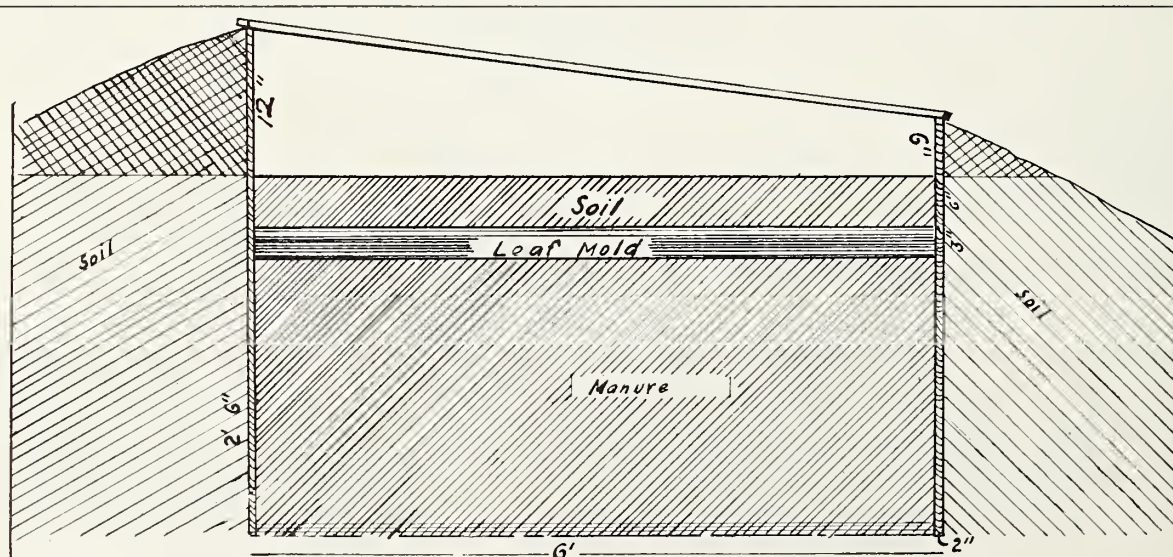


FIGURE 10—CROSS SECTION OF A HOTBED





FIGURE 6—POTATOES. NOTE SIZE AND SMOOTHNESS

Asparagus is a perennial plant and should be planted in the garden at one side, where it will not interfere with general cultivation. Every fruit grower's garden should have its asparagus bed. It is one of the earliest plants in spring; a very heavy producer and responds readily to fertilization, warmth and sunshine. While asparagus prefers the lighter, loamy soils, it will do well in almost any part of the country where gardening can be conducted. When once established an asparagus bed is good from fourteen to twenty years. It is, therefore, important that the initial preparation of the bed be thorough. Strong two-year-old roots can be secured from almost any reliable seedsman. These roots may be set either in fall or early spring, according to local conditions and circumstances on the farm. When preparing the bed furrow out the rows from six to eight inches deep, four to five feet apart, and set the plants in the bottom of the furrow fifteen inches apart. Cover firmly with soil. A liberal supply of well rotted manure should be used in preparing the bed, and may also be used as a top dressing. If the plants are set in the fall there should be considerable cutting the following spring. The young tender shoots should be cut from two to three inches under the soil. Do not injure the crown of the plant. The cutting season should last from one to two months. During this period all shoots should be removed. Cutting should cease when the plants become tough and stringy. Cultivation should then be given during the remainder of the season in order to secure a strong development of the plants which will insure a heavy crop for the following year. Cut and burn the tops when they begin to die. It is generally found advisable to give the bed a good top dressing of manure at this time, which may be forked in early the following spring. Keep the bed clean at all times. Varieties: Conover's Colossal, Barr Mammoth and Columbian Mammoth White, Burpee.

With the exception of the Limas, most all beans do well where vegetables can be grown. Beans should be planted on warm, rich, deep, moist soil as soon as danger of frost in spring is over. By

successive plantings a continuous supply may be secured from early summer to late fall. Later plantings of beans may be made in the garden in the space occupied previously by such plants as radish, lettuce, beets, etc. Beans are less stringy, and consequently more tender when grown rapidly in a favorable spot. It is, therefore, important that they be given the best possible conditions. Beans should be planted in rows to permit horse cultivation. The gardener will have no difficulty in making a satisfactory choice of varieties, as most seed houses carry a large assortment. Varieties: Improved Prolific Black Wax, Thorburn; Extra Early Refugee, Bismarck Black Wax Prolific, Dwarf Horticultural, Stringless Green Pod, Burpee; Early Warwick, Henderson.

The garden beet gives best results in deep, cool, loamy soils. Seeds may be sown as early as the ground can be worked. They are sown in drills and thinned to five inches in a row. In the fruit grower's garden they should be sown in rows sufficiently far apart to admit of horse cultivation. They can be secured any time during the year, according to the way they are handled. Beets for table use should be of medium size, tender, sweet and fine in texture. They should be grown rapidly to secure the desirable qualities. The large, poorly grown specimens of most all vegetables are not as desirable as the medium, quickly grown ones. Beets can easily be held for winter use in the average cellar. Beets make a fine crop for successive planting. They can be sown as a companion or succession crop only where the climate is warm enough to grow more than one crop during the season. Beets planted thickly in the row can be thinned out for use as greens before any

damage is done. The long varieties are the best adapted for winter use, and the round varieties for early use. Varieties: Eclipse, Edmund Blood Turnip, Thorburn; Crosby's Egyptian, Blood Red, Burpee; Dreer Excelsior, Dreer.

Brussels sprouts deserve more attention than it usually receives in most gardens throughout the country. The little sprouts borne in great profusion in the axils of the leaves are a great delicacy and represent a choice dish of the cabbage family. They are cooked similar to cabbage. They are very hardy and may be left out until freezing weather begins. Light freezing does not injure this plant, and it is thought by many that freezing improves it. The plants may be started in the hotbed and handled similar to cabbage. There are many varieties of Brussels sprouts, but one will have no difficulty in securing a satisfactory variety, as most all of them are desirable. Varieties: Scrymger Giant, Farquhar; Long Island Improved, Burpee.

Cabbage can be started under glass or in a hotbed about the first of February and transplanted to the garden for early cabbage. They should be transplanted when the seedlings show the third leaf. Grow them rapidly, harden off and transplant to the open ground as soon as weather permits in spring. Nothing but strong, stocky, well grown plants should be set. Most members of the cabbage family are easily handled. Cabbage should be set on a rich and moist section of the garden. It delights in a cool, deep, moist soil. Give cabbage plenty of room by putting the rows four feet apart, and one and a half to two feet in the row. The early varieties require less space than the late flat types. The early crop



Photo by C. C. Vincent  
FIGURE 5—SALSIFY, VALUELESS WHEN ROOTS ARE BUNCHED LIKE THIS



may be followed by late beans, spinach, beets, etc., if so desired. The cabbage plant should be left in the ground until the head has fully developed if the maximum yield is desired. They may be left in the ground until late in fall. Cabbage can very easily be stored for winter use. The plants are pulled and the heads placed in a trench, with the roots upward, and covered with a sufficient mulch of coarse material and earth to prevent severe freezing. Cabbage can be successfully stored in a good cellar if one can be secured. It may be expected to do well where gardening can be successfully conducted. Varieties: Extra Early Express, Early Jersey Wakefield, Early Winigstadt, Surehead, Burpee; American Drumhead Savoy, Henderson.

Carrots do well on most any garden land, but prefer a moist, deep, loamy, friable soil. The gardener should try to grow the carrot quickly in order to secure tender, sweet, uniform specimens. Avoid hard, dry, crusty soil. Seeds may be sown in rows by using a hand drill. Have the rows wide enough to admit horse cultivation. When the plants have grown three to four inches high thinning should be done, leaving only the larger plants in the row from four to six inches apart. The seed should be thickly sown, for many may not germinate. Carrots should be sown early, as the crop, especially the late varieties, requires a

long season. The carrot, like most all root crops, responds readily to frequent cultivation. Only the table varieties should be grown in a home garden. By judicious choice of varieties carrots may be enjoyed for a long season. The late varieties can be left in the ground until freezing weather begins, when they should be dug and stored in the cellar or buried in the field similar to cabbage. Varieties: Carentan, Thorburn; Golden Ball, Chantenay, Danvers Half Long,

Burpee; Henderson Intermediate, Henderson.

The general requirements of the cauliflower are practically the same as for the cabbage. It delights in a moist, cool, deep, loamy soil and responds readily to frequent cultivation. It thrives best in cool and moist summers. One should endeavor to secure fresh seed each year. It can be sown in a hotbed and handled similar to the cabbage plant. To secure the most delicious specimens of cauliflower it is essential that the plant be grown rapidly and the leaves tied or broken in such a manner to inclose the head to secure complete blanching and crispness. The gardener should learn by testing under his own conditions which are the most desirable for him to grow. It should be grown quickly in order to secure sweet, tender heads. Set it in rows wide enough to admit horse cultivation and from twenty-five to thirty inches in the row. Varieties: Best Early, Burpee's Dry Weather, Burpee; Extra Early Snowball, Henderson; Gilt Edge, Thorburn.

Celery delights in a moist, deep, cool soil. Well drained swamp or low lands are especially adapted to the culture of celery. However, most any good garden soil where moisture can be secured, and with the proper handling, celery can be raised. Sow the seed in a hotbed or flats in the greenhouse about the first of April and transplant once or twice before setting in a permanent place. Celery seed is small, rather difficult to germinate, and fresh seed should be obtained each year. Especial care should be given to the kind of soil used in germinating celery seed. Such factors as light, air and watering should be carefully looked after. The seed should be very lightly covered. Usually the seed bed or flats in which the seed is germinating should be partially shaded in order to prevent excessive evaporation and baking of the soil. Avoid excessive watering while the plants are in the propagating bed. See that the ground for celery is deeply plowed, fertilized and put in the best condition before setting the plants. Celery delights in liberal applications of manure. There are several methods of planting celery, but for planting in a fruit grower's garden

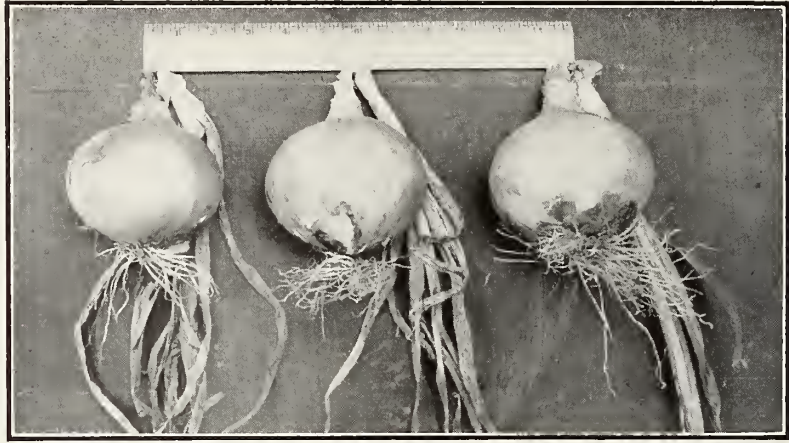


FIGURE 7—ONIONS



FIGURE 8—TABLE BEETS





FIGURE 9—CARROTS

it should be placed in rows far enough apart for horse cultivation. The ground may be furrowed out and the plants set in the bottom of the trench six to eight inches apart. As the plant develops the soil should be drawn around to secure proper blanching. The plants may be severely cut back when transplanting to the field. Banking with earth should be done several times during the growing period, care being taken to hold the tops of each plant together in such a way that earth will not be placed in the heart of the plant. Frequent and copious waterings are essential to secure a tender, sweet, crisp growth of celery. Celery may be enjoyed from early winter till the following spring. It can be successfully kept by standing the plants upright in a few inches of soil in the cellar, or may be stored in the field by covering with boards and sufficient soil to prevent severe freezing. Varieties: Golden Self Blanching, White Plume, Boston Market, Burpee.

Corn is so well known that it needs no further comment here. A succession can easily be had by frequent plantings or by using varieties which mature at different periods. By planting corn in rows wide enough for horse cultivation a crop may be secured with very little attention other than frequent cultivation. Corn should be planted on warm, early soil. There are many varieties of sweet

corn. For table use those varieties should be chosen which mature quickly, contain a large percentage of sugar and are tender. Corn should not be planted until the ground is well warmed in spring. Plenty of seed should be used, as the weaker plants and suckers can be removed. Varieties: Cory Early, Golden Bantam, Burpee; Manhattan, Early Marblehead, Early Minnesota, Thorburn.

Cucumbers may be sown in hills as soon as the ground is sufficiently warm in the spring. They delight in a friable, rich soil and frequent cultivation. By keeping the fruit from maturing larger yields may be secured. By the use of the hotbed or forcing hills early plants may be obtained. If plants are grown in the hotbed and transplanted they should be carefully "hardened off" before being transferred to the garden. Hills may be set four by six feet or six by six feet, as the space permits. Careful preparation of the soil in each hill should be given. It is often found advantageous to dig the hole two feet across and one foot deep, incorporating a liberal supply of horse manure. Do not plant the seed directly in a bed of manure. Plant the seeds about one and one-half inches deep. Firm the soil lightly after planting. Cucumbers should be planted level, and not on mounds as sometimes practiced. See that no more than four plants grow to each hill. While picking cucumbers

do not injure the vines, as such injury lessens the yield materially. Remove the cucumbers by using a sharp knife. Cucumbers for slicing purposes should be grown rapidly, medium in size and well filled at both ends. Selections from the White Spine type are very desirable. Varieties: Extra Early White Spine, Fordhook Pickling, Burpee; Cumberland, Thorburn 1896 Pickler, Improved White Spine, Thorburn.

The culture of egg plant is quite similar to that of the tomato. For further details of culture see tomato. Varieties: Black Beauty, Early Long Purple, Burpee; Early Dwarf Purple, Thorburn.

Kale is a member of the cabbage family. It deserves more attention and should be planted more frequently in the garden. It makes an excellent plant for furnishing a liberal supply of greens during the fall, winter and spring. It is quite hardy. It should be grown and handled like cabbage in every respect. Kale will stand the winter nicely and is thought by some that the quality is improved by freezing. It can be successfully grown where cabbage does well. It is very easily grown. Varieties: Tall Green Curled Scotch, Dwarf German, Burpee; Curled Dwarf Green Scotch, Thorburn.

The culture of the leek is practically the same as for the onion. The flavor is not so strong. It usually requires the entire season to mature, but may be used green like onions. It does not form a bulb like the onion. By planting leek in an open furrow, gradual filling may be practiced which will secure a greater blanched portion than by planting on the level like onions. Leek deserves to be more generally planted in the garden. Varieties: Large Rouen, Thorburn; Long Mezieres, Burpee.

For best success with lettuce the soil should be in fine condition. This plant responds readily to fertilization. The best plants may be obtained by sowing the seed in a hotbed and transplanting once before transferring to the field. This method will insure a continuous growth of crisp, succulent plants. The growth should never be checked, as it makes tough, bitter lettuce. Frequent cultivation should be given. A large amount of moisture is desired throughout the season. The many varieties of lettuce may be divided into two classes—cabbage or head lettuce and Cos or Romaine. If one cares to plant Cos varieties they should see that the outer leaves are frequently tied up in order to blanch the inner leaves. This lettuce is highly recommended and deserves more attention in Western gardens. It is a great delicacy when well grown, but very undesirable when proper care is not given. Varieties: Deacon, Grand Rapids, Denver Market, Triannon Cos or Romaine, Burpee; All Heart, Dreer.

The culture of muskmelon and watermelon plants is essentially the same as for cucumber, except they require more room. By choice of varieties a very fine selection of both may be secured. Varieties: Fordhook, Netted Gem or Rocky



Ford, Kleckley Sweets, Cole's Early, Fordhook Early, Burpee.

By judicious planting a fine supply of onions may be secured throughout the season. Seed may be sown in drills in spring as early as the ground can be worked. If one desires onion sets may be planted for early green onions. The onion is essentially a surface feeder. It should be grown in rich, friable soil, with plenty of plant food near the surface. Frequent and shallow cultivation is essential to preserve moisture until the onion begins to mature. The bulbs should not be allowed to stand closer than five to six inches in the row if best results are expected. If the bulbs are not maturing in time to be harvested in fall before inclement weather begins the tops should be bent over to hasten maturity. See that the onions are well matured and dried before storing for winter use. There are many varieties of onions. One will have no difficulty in choosing varieties adapted to local conditions and personal preferences. Varieties: Oregon Yellow Danvers, Spokane Seed Company; Red Wetherfield, White Portugal, Philadelphia Silverskin, Burpee; White Queen (fine for pickling), Thorburn.

Parsnips, like other root crops, require a deep, loose soil in order to develop a long, smooth and shapely root. Seed may be sown in drills where the plants are intended to grow and covered with three-fourths of an inch of soil. Sow the seed rather thickly and thin plants to four inches in the row. Parsnips require the entire season for their full development. They may be dug in late fall, topped and stored similar to carrots. They may also be left in the ground over winter. The hollow crown varieties are not as desirable for leaving in the ground as those with a smooth shoulder. If the roots are to remain in the ground over winter it is advisable to give them a light mulch of coarse straw material. Varieties: Hollow Crown,

Improved Guernsey, Early Short Round, Burpee.

A few specimens of parsley should be found in every garden. It is not difficult to grow and is very productive. A large amount of tender foliage may be gathered for garnishing throughout the year. Varieties: Emerald, Burpee; Extra Curled, Thorburn.

The first sowing of peas should be made very early. By a judicious choice of varieties and succession planting peas may be enjoyed for a long period each year. Their culture is not difficult. For the fruit grower's garden it is seldom wise to use tall growing varieties which require staking. A liberal supply of seed should be sown about three inches deep. One will have no difficulty in choosing varieties and there is a large list carried by most seed houses. The essential thing for the home gardener to bear in mind is to have a succession of peas throughout the season which do best under his climatic conditions. This may be secured by several plantings or by planting early, medium and late varieties. Varieties: Nott's Excelsior, Prosperity, American Wonder and Horseford's Market Garden, Burpee.

The Irish potato is here mentioned only as a garden crop. It is usually not well to take the space except for early varieties. The main crop is generally grown on other sections of the farm. By plowing the ground as soon as it is fit to work in spring tubers may be had about the time the first crop of peas is harvested. If one is anxious to have extra early potatoes seed may be sprouted in shallow boxes. These sprouts are carefully preserved and transplanted to the ground with a liberal portion of seed attached. Choose smooth, medium size uniform tubers which are typical of the variety. Always pay attention to the selection of an ideal type when securing potatoes for seed. A great deal can be accomplished in maintaining or improving the potato by securing superior

strains through selection. Varieties: Early Rose, Carman No. 3, Early Ohio and Rural New Yorker.

The radish, like other root crops, delights in a moist, rich, friable soil. They should be grown rapidly without a check. Several plantings should be made in order to secure choice radishes for a long period of time. Seed is sown in drills as soon as the ground can be worked in spring. The radish is a fine crop for succession planting. Varieties: French Breakfast, Scarlet Turnip, Icicle, White Vienna, Burpee.

Salsify is a most excellent plant when well grown. It is commonly spoken of as vegetable oyster. The culture of this plant does not differ from that of other root crops like carrot or parsnip. (See Figure 5.) Variety: Sandwich Island Mammoth, Burpee.

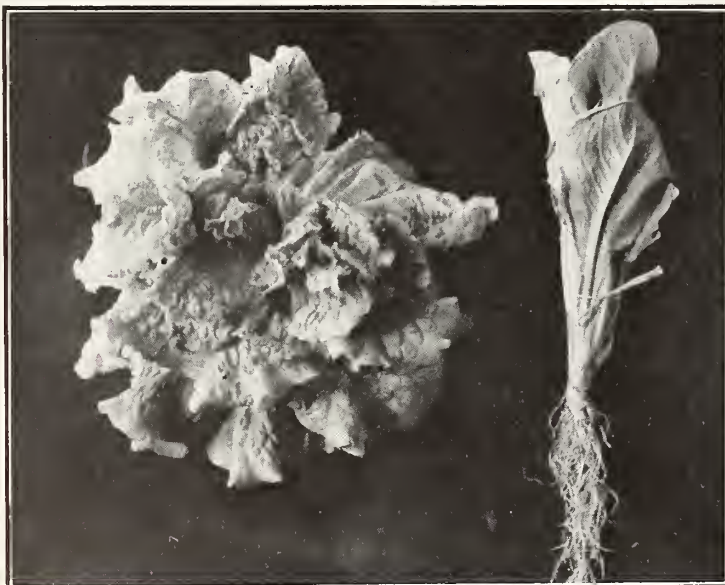
Spinach is highly prized as a pot herb. It is very easily grown. Spinach grows rapidly and several crops may be secured during the season. The culture of this plant is practically the same as for lettuce. It makes a fine companion or succession crop. Varieties: Long Standing, Victoria, Burpee; Curled Leaf Savoy, Thorburn.

For details of culture of squash see cucumber or pumpkin. Varieties: Early White Scallop, Bay State, Thorburn; Early White Bush, Hubbard, Burpee.

It is essential to have the tomato plants grown in a hotbed or greenhouse in order to secure large, strong, stalky plants. The tomato is susceptible to early and late frosts, which shorten its growing period materially. The plant should be as large as possible when transplanted to the field. Endeavor to lift each plant without loosing the soil or molesting the roots. If they are carefully handled while being transferred to the field they should not receive a check to their growth. Fruits may be ripened early by training the vines to one or two stems and supporting them by means of a stake or trellis. The most serious drawbacks to tomato culture are frosts, droughts and the various blights. The tomato has been trained in various ways to secure maximum yields and earliness. Probably the most satisfactory way for the handling in the fruit grower's garden is to plant them in rows five feet apart, four in the row, and tie them to a stake. Side shoots should be removed. The tomato delights in frequent cultivation. Varieties: Spark's Earliana, New Stone, Livingston; Atlantic Prize, Thorburn.

Some useful garden literature may be obtained free by addressing the Secretary of Agriculture, Washington, D. C. The following is a list of farmer's bulletins of interest to a home gardener:

35, Potato Culture; 39, Onion Culture; 61, Asparagus Culture; 62, Marketing Farm Produce; 68, The Black Rot of the Cabbage; 76, Tomato Growing; 91, Potato Diseases and Their Treatment; 94, The Vegetable Garden; 121, Beans, Peas and Other Legumes as Food; 138, Irrigation in Field and Garden; 148, Celery Culture; 203, Canned Fruits, Preserves and Jellies; 220, Tomatoes; 231, Spraying for Cucumber and Melon Diseases; 254, Cucumbers; 255, The Home Vegetable Garden; 256, Preparation of Vegetables for the Table; 263, Practical Information for Beginners in Irrigation; 282, Celery; 289, Beans; 295, Potatoes and Other Root Crops as Food; 354, Onion Culture.



HEAD LETTUCE



# SOME INSECTS AND MITES ATTACKING THE PEACH

BY GEORGE P. WELDON, EXPERIMENT STATION, FORT COLLINS, COLORADO

THE novice in the business of growing peaches in Colorado very often begins with a mistaken notion that peach trees require no spraying. That notion has probably grown out of the fact that in the early history of orcharding in the state spraying for the control of insect pests was confined almost entirely to apples. While the spraying of peach trees may not be necessary every season there are times when certain sprays are necessary in order that destructive pests may be controlled. One who hopes to make a success growing high grade fruit must resort to spraying whenever the prevalence of some insect pest demands it. It would not be wise to lay down set rules for the spraying of peaches, for there are too many factors that may bring about a marked increase or decrease in the numbers of certain pests occurring from season to season. For example, last spring a very severe infestation of the common green peach aphid in the peach growing sections of Colorado made it necessary that stringent methods of spraying be adopted. The previous spring the occurrence of this pest was very general, but it was not abundant enough in most orchards so that it was necessary to spray for its control. Often a dormant spray of lime and sulphur or soluble oil is beneficial in orchards where certain pests may be spending the winter. Too much, however, should not be expected of dormant sprays, and while there are insects that they may control very effectively there are others that will be controlled but partially or not at all. Very often the orchardist who uses a lime and sulphur spray seems to lose sight of this fact, and because the spray does not meet

it is not a seriously injurious pest every season there are seasons when it becomes exceedingly destructive, and is responsible for a great financial loss to those peach growers who do not adopt proper methods of control.

The adult of the twig-borer is a tiny, dark gray moth. It is an Old World species, supposed to have come to us with the peach from Western Asia, and has been known in the United States since 1860. The twig-borer is principally an enemy of the peach, and usually we hear of it in connection with its damage to this fruit. It may be found, however, on all stone-fruit trees, but shows a decided preference for the peach. In Bulletin 80 of the United States Department of Agriculture Dr. Marlatt mentions the pear among its list of food plants. The writer has never noted the attack of this insect upon other than stone-fruit trees. Its occurrence on the pear or other pome fruits is probably rare, and might be compared to the occurrence of the codling moth, which is almost exclusively an enemy of the pome fruits, in plums, peaches or other stone fruits. While cases of codling moth infesting stone fruits in any numbers are rare they were found the past season so plentiful in Burbank plums of a certain orchard that they were really doing considerable damage. The twig-borer, during a season of abundance, might occasionally modify its habits to the extent of an occasional attack upon pome fruits, as the codling moth in a season of abundance may modify its habits and occasionally attack stone fruits.

The larvae, as is shown in Figure 1, hibernate in little silk-lined chambers constructed within the bark and very close to its surface. Mr. Warren T. Clarke, in California Experiment Station Bulletin 144, states that "in the majority of cases they are found just beneath a thin layer of the greener cells, just below the brown bark, while the greater part of the burrows is in the yellowish portion of the cambium." He also states in connection with the winter burrow within the bark that "the position generally chosen on the tree for the purpose is the crotch formed where the new wood joins that of the previous year, though older crotches are occasionally selected." In Colorado I have found them almost entirely in the older crotches, and always, when found there, they have been in the brown portion of the bark, just as close to its surface as the hibernacula could be constructed. Occasionally the hibernating cells containing larvae have been found underneath buds on the new growth of peach trees. Their occurrence in this location does not seem to be at all general.

While hibernating the larvae vary somewhat in size, but are all very small, and their detection is somewhat difficult, except when very close observations are made. The presence of the larvae themselves during the hibernating period could scarcely be detected were it not

for the fact that they construct at the entrance to their burrows tiny silken tubes covered on the outside with bits of bark, which were chewed off by the larvae while excavating the hibernacula. These little tubes are shown in the crotch of a tree in Figure 3, and again one is shown at the entrance to a burrow containing larvae in Figure 2. The larval cell is also lined with silk, the silken tube being merely a continuation of this cell lining. Throughout the winter months the hibernating larvae remain inactive within this cell. Apparently no feeding is done after the time that they construct the cells until they leave in the



spring, consequently no growth takes place during that time. A hibernating larva, magnified twenty-six times, is shown in Figure 1. These larvae are exceedingly well protected in their hibernacula, and Mr. Warren T. Clarke's experiments in California show that they are almost impenetrable to even an oil spray during the winter season.

In the spring of the year, about the time the peach trees bloom, the larvae leave their winter quarters and eat into the tips of the twigs, either beginning their work at the extremities or a short distance below, sometimes hollowing them out for usually a distance of less than an inch from where the twig was entered, leaving a mere shell or hollow cylinder of the portion in which they have fed. Again, they may merely gouge out the tip of a twig on one side, entering in as far as the pith and then leaving for some other twig. Thus they go from twig to twig, feeding first in one and then in another, until often the tips of a great many branches will be killed back, thereby checking their growth and more or less injuring the tree. The detection of their work is no difficult matter a short time after they begin feeding, for the leaves of affected twigs soon wilt and later dry up from the injury done to them.

The injury the first brood larvae do to twigs, while sometimes alarming, is not usually to be compared with the injury to the fruit from the second and



with his expectations in controlling some certain pest he condemns it for all of them. As a matter of fact he probably was paid for its use in the destruction of some other pest.

One of the most common enemies of the peach in the United States is the twig-borer or "bud worm," as it is sometimes called. Its occurrence has been reported from most of the peach growing states of the Union, both in the East and West. In Colorado it has been known for a number of years, and while



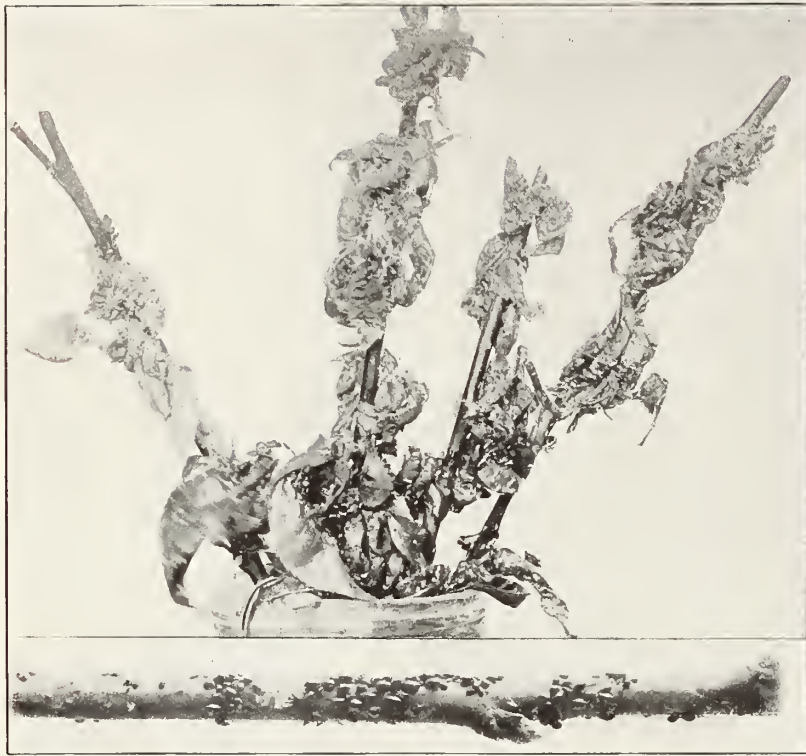


FIGURE 4—PEACH LEAVES CURLED BY GREEN PEACH LOUSE  
FIGURE 5—BLACK PEACH APHIS ON TWIG IN EARLY SPRING



FIGURE 6—TWO GREEN PEACH LEAVES AND TWO  
FADED, CAUSED BY ATTACK OF BROWN MITES

third broods. Often this injury to the fruit is extensive enough to render great quantities of it unmarketable, and we have a condition of peaches comparable to that of apples as a result of codling moth attack. The larvae usually enter the fruit from the stem end and may feed entirely within the flesh, but very often they eat their way into the pits. Affected peaches may be detected by an issuance of sap mixed with little pellets from the fruit which have been chewed up by the larvae. This sap hardens on the outside and peaches so affected are often termed "gummy peaches."

The pupal stage of the insect is said to last from six to twelve days, the first brood remaining pupae for the longest time. This period is passed by the first brood pupae, according to Mr. Clarke, principally in curls of bark on the trunks of trees. They may, however, be found in other places, such as between two peaches which come in contact with each other, under rubbish on the ground, etc. The cocoon which they make is a very flimsy one; in fact so much so that in reality it should not be termed a cocoon. A few strands of silk are spun by the

The twig-borer moth is a tiny gray insect about one-quarter of an inch in length, and having a wing expanse of about one-half inch. It is quite a beautiful little moth with its dark gray, fringed wings. They are very seldom seen in the orchards by the fruit growers because of their small size, their close resemblance to projections of the bark and their habit of resting perfectly still during the daytime on the trees.

Eggs of this insect were first found by Dr. Marlatt, who kept the moths in confinement and found that they were deposited above the bases of the petioles of the leaves. Mr. Clarke, in California, found the eggs of the first brood in the orchard in the same location as described by Marlatt. He found, however, that the eggs of the second generation of moths were laid not on the twigs, but on the fruit and in the edge of the stem end depression; the eggs of the third generation were found in cracks of the bark or exposed on its surface just above the crotches formed by the new wood and on the old wood.

The eggs are pearly white, changing to a deep yellow before hatching. They are quite conspicuous, being about one-sixtieth of an inch in length. These observations of the egg and egg-laying habits of the insect, made in California by Mr. Clarke, are very interesting, as they are the first recorded from studies made under the natural conditions of the orchard.

The experiments testing the different insecticides for the control of this pest were all conducted in the spring of 1910, and were combined with the green-peach aphid experiments recorded here, with the discussion of the latter pest.

The comparative scarcity of twig-borer the past season made it difficult to secure

much reliable data from the experiments.

The following table, compiled from data gathered in the W. C. Strain orchard at Clifton, Colorado, gives the results attained with different insecticides in controlling the peach twig-borer:

Insecticides Used	Strength Used	Wilted Tips	Trees Examined
Black Leaf .....	1-30	5	3
Black Leaf .....	1-40	6	3
Black Leaf .....	1-50	3	3
Black Leaf .....	1-70	0	1
Black Leaf "40" ...	1-600	0	2
Black Leaf "40" ...	1-800	7	4
Black Leaf "40" ...	1-1000	6	4
Lime and Sulphur..	1-10	0	12
Lime and Sulphur..	1-11	0	12
Soluble Oil .....	1-20	4	2
Unsprayed .....	.....	16	4

Trees sprayed March 7, examined April 26.

While it is not thought that this year's experimental work with twig-borer would justify the drawing of many conclusions there were at least some helpful hints gathered in regard to its control. It may be seen that "Rex" lime and sulphur gave perfect results. More trees were sprayed with the "Rex" mixture 1-10 and 1-11 than with any other insecticide, yet in a very careful examination of twelve trees by Mr. Strain and myself we failed to detect the presence of a single wilted twig because of the work of the borer. On four check trees in the same block sixteen wilted tips were counted, and on twenty-two sprayed with tobacco preparations and soluble oil thirty-one wilted tips in all were counted. One tree sprayed with Black Leaf 1-70 was free from wilted tips, and also two trees sprayed with Black Leaf "40" 1-600. The fact that the higher strengths of Black Leaf did no appreciable good would indicate that it was simply a matter of chance that the one tree sprayed with the weaker strength indicated good results. Black Leaf "40" 1-600 apparently gave good results, however, because of only two trees having been treated,



1  
THE LARVAE

larvae, and to these strands the pupae is attached by means of hooks at the tip of the abdomen. The second and third brood pupae more often pupate in the suture at stem end of peaches than underneath the bark, and the semblance to cocoons is even less than in the case of the first brood.



and because of the scarcity of the twig-borers in the orchard it would not be wise to draw any definite conclusions without further experiments. The number of trees treated with lime and sulphur and their total freedom from borers seemed great enough when compared with the small number of check trees and other sprayed trees with quite a number of borers to justify the conclusion that "Rex" lime and sulphur is a perfectly effective spring remedy for this pest. For some unknown reason home prepared lime and sulphur used at the same time as the "Rex" spray, but in another orchard, apparently did very little good.

Mr. W. T. Clarke, in bulletin 144 of the California Experiment Station at Berkeley, gives some interesting data in regard to sprays applied at different times of the winter and spring for the control of twig-borer. He found that during the winter season the little larvae, in their hibernating cells, could not be killed either with kerosene emulsion or lime and sulphur. He discovered, however, that the larvae become active in these cells for some time in the spring before emerging, and that during this period of activity the cells are rendered more or less permeable to a spray, and then the larvae can be successfully combated with a contact insecticide. In regard to the effective use of a spring spray of lime and sulphur Mr. Clarke says: "The lime-salt-and-sulphur-sprayed trees, when the spraying had been done in the early spring, showed the most satisfactory results of any at the time of examination. On the various station orchards, comprising over 12,000 peach trees, the average number of bud worms was about one to every ten trees, and this average was maintained on many orchards in the district. Indeed, it was a difficult matter to find the worms in these orchards, and it was only by the closest scrutiny of the trees that they could be located in them. The general condition of these trees was excellent and a marked absence of 'curl-leaf' was noted. An examination of the trees in one orchard that had been sprayed with the lime, salt and sulphur early in February showed that the attack of bud worms was severe. On many of the trees from which we cut the worms we found from five to nine to the tree. The general condition of the trees was good and a very small amount of 'curl-leaf' was present."

From this season's experiment at Clifton, from the experience of the many Colorado orchardists who have used lime and sulphur for the control of this pest and from the apparent success of this spray in California, we feel justified in recommending it for use in sections where there is injury from twig-borer.

While arsenate of lead was a total disappointment in this season's test it has previously been used with good success, and is no doubt effective when applied at the proper time. E. P. Taylor, in his annual report of the Western Slope Fruit Investigations for 1906, gives some very satisfactory results from the use of five pounds of arsenate of lead to fifty gal-

lons of water, applied on April 14, at which time the majority of the blossom buds showed their pink tips. Commenting upon the results of his experimental work he wrote: "It may be said that arsenate of lead, applied in the spring at the time the buds of the peach are beginning to open, will control the peach twig-borer as effectively and cheaply as the lime and sulphur wash, up to this time the most universally used."

Colorado peach growers are fortunate in that they do not, as a rule, have the crown-borer of the peach to fight. In



ERECT LAWSON'S CYPRESS

many of the peach-growing sections of the United States this is one of the worst pests preying upon the trees. Unlike the twig-borer, which feeds upon the tender twigs and fruit, this species feeds just beneath the bark at the crown of the tree, often girdling them. The adult insect is a moth which, at a glance, more closely resembles some kind of a bee or wasp than a moth. The eggs of this moth are deposited on the trunks of peach trees, and the little worm-like larvae hatching from them eat their way beneath the bark and there feed until full grown.

The work of the insect may be detected by masses of gum in which are mixed pellets of wood or borings which the larva chews to pieces as it feeds. These gum masses usually occur at or just below the ground line. Their presence aids in the fight against this pest, as the burrows in which the larvae feed can always be found beneath. By using the point of a knife or a piece of wire this

burrow may be followed and the larva located and killed. No better method for combating the peach tree borer has ever been devised than worming, as the above process is called, with a knife or some other implement that can be inserted into the burrow. Worming should be done both in the fall and spring. While the larvae often do not attain a sufficient size in the fall to be readily detected a great many of them can be killed before they get in very far, thus preventing the damage that they might do before they could be detected in the spring.

Various other methods of control have been tried, such as wrapping the trunks with tar paper to keep the moths from depositing their eggs, applying repellants for the same purpose and mounding the soil up above the crown of the tree. This last named method is valuable in that where it is used the larvae may be induced to enter the trunk of a tree some distance above the surface of the ground, then when the mound is removed the worms are high on the trunk, where they can be much more easily destroyed than if they were lower down.

It is very fortunate that none of the scale insects have as yet been found abundantly on peach trees in Colorado. The San Jose scale has been seen on a very few trees, but not plentiful enough to do any serious injury. This pest seems to confine its attacks more to the apple in the few orchards where it has been found. In one section of the Grand Valley a scale insect closely allied to the dreaded San Jose is found. Samples of this scale were sent to Professor T. D. A. Cockerell, entomologist in the State University at Boulder, who kindly determined it for me as the Putnam scale. Only in rare cases has this insect been found doing serious injury.

There are other scales of minor importance that are sometimes found on peach trees; all of these insects may be successfully combated with an early spring spray of lime and sulphur or soluble oil. If "Rex" lime and sulphur is used it should be diluted by using one part of the "Rex" solution to ten parts of water. A good home-made lime and sulphur is as effective as the "Rex," and should be made with twenty pounds of lime and fifteen pounds of sulphur to fifty gallons of water. Soluble oil is ordinarily used at a strength of one part of the oil to from fifteen to twenty parts of water.

While spring spraying for the control of these scale insects is probably more advantageous than a spray at any other time good work can also be done with a fall application. Very often orchardists would rather spray in the fall because there is more time to do so than in the spring.

In bulletin 152 of this experiment station an account was given of the life habits and injuries from the brown mite, and also the red spider. This mite passes the winter almost entirely in the egg stage. These eggs are tiny, red spherical shaped, glassy objects, usually deposited in or near crotches of the branches.



Hatching takes place in the spring. At first the young mites are red in color and have only six legs. Upon feeding for a short time moulting takes place, after which the mite is olive green or brown in color, and has eight legs, more or less tinged with red. It feeds principally upon the leaves, occasionally attacking the fruit, and may be detected by the faded out, pallid appearance of the foliage, dotted here and there with little black specks of excreta. Figure 6 shows two peach leaves which have been attacked and two which are normal from the same tree, and gives a good idea of their appearance after this pest has been feeding upon them.

Experiments show that tobacco preparations are of little value in controlling this mite; that they will kill the mites, but not the eggs. As the latter are almost always present on a tree where the mites are feeding such sprays can only be effective when repeated applications are made. The sulphur spray was again tested this season, this time at Palisade, Colorado. Some badly infested pear trees were treated, using ten pounds of sulphur to fifty gallons of water. Results of this test were perfect, and a week after the trees had been sprayed it was hard to find a living mite on them.

An interesting point in connection with the sulphur treatment for brown mite is: The adult mites are not immediately affected by the spray, but those newly hatched die shortly after the application. An examination of a tree the day after spraying with sulphur is usually disappointing, for the adult mites may be alive and abundant. In all the tests made a very few newly hatched, six-legged mites have been found twenty-four hours after spraying, and in a week's time neither adult nor newly hatched mites can be found. The sulphur adhering to the bark and leaves undoubtedly kills the young mites as they hatch from the eggs. Whether the older ones are killed by the sulphur or simply die a natural death is a point that has not been determined definitely. As there are probably only three broods of this mite, and they are quite long lived, it would seem that the sulphur really kills the adults, but that it takes some days to do so. The important fact remains that the young mites never develop after the sulphur treatment, whether hatched or in the egg stage at the time of treatment, and that the adult mites are either killed by the sulphur or die a natural death within seven or eight days after treatment, thus ridding infested trees of the pest. In bulletin 152 the following statement is made: "Trees may be treated while dormant with lime and sulphur. This spray has no effect upon the eggs, but probably kills the young mites as they hatch." The fact that the lime and sulphur kills young mites as they hatch was definitely established last spring at Palisade, Colorado.

Three adjoining peach orchards, each containing a great many brown mite eggs—two of them sprayed with Rex lime and sulphur 1-10 and one not sprayed—were chosen as observation

places to determine this point. The eggs were found hatching in all three orchards at the same time; in the orchards which were sprayed a great many of the tiny, red mites could be found where they had died on the limbs very soon after hatching. In no case were any found alive, except a few immediately hatched from the eggs. In the unsprayed orchard all the mites seemed to live, and the trees



ROSE DOROTHY PERKINS

were soon covered with them. Throughout the season the sprayed orchards were almost entirely free from mites, while the unsprayed one, located between the other two, had quite a serious infestation. As a result of the extensive use of a lime and sulphur spray in the Palisade section the past season the brown mite was practically exterminated, except in a few orchards where such a spray was not used.

The red spider mite differs from the preceding one in its wintering habits; instead of living over in the egg stage, as the brown mite does, this species hibernates in the soil as an adult, close to trees upon which it has been feeding or underneath rubbish of any kind. On the 7th of November, last season, they were found plentifully under burlap bands that had been applied to trees for the purpose of trapping the codling moth larvae. Hibernation begins before the cold weather sets in; the first downward migration of mites to the soil was noticed at Grand Junction last on July 26. While

a few of them may work on trees until late in the fall their damage is usually over by the 15th of August. Eggs are laid in the spring by mites that have lived through the winter. These eggs are pearly white, and may be seen as tiny specks on the under surface of the leaves.

When first hatched from the egg this mite, like the species previously treated, has only six legs, the fourth pair developing with the first moult. They are somewhat smaller than the brown mite, usually green in color while feeding upon the foliage of trees, with minute black dots on the dorsum of the abdomen. When feeding ceases in the fall, and they begin their downward migrations to the soil, they become an orange or red color. During my observations of this species of mite, for the past three years, a red one has never been seen on fruit trees until feeding ceases in late summer. In greenhouses this same species is very often red in color. Unlike the brown mite, the red spider has the power of spinning a web, and may easily be detected, when prevalent, by the presence of these webs on the foliage or branches of infested trees. The appearance of injured peach foliage is not unlike the appearance of that injured by the brown mite, but is more inclined to turn yellow in patches.

Sulphur is very successful in treating this mite also, whether dusted upon or applied as a liquid spray to infested trees. When applied in water, by means of a spray, sulphur should be very finely screened and mixed with the water by using a small amount of soap. Without the soap the sulphur will remain on the surface of the water, while with the soap it will sink to the bottom of the spray tank, and a good agitator will keep it mixed. Lime and sulphur has not proven a successful treatment for red spider, and cannot be depended upon to do effective work when used as a dormant spray. The use of tobacco preparations, as with the brown mite, result in little good.



**F**OREST FIRES, one of the greatest sources of destruction to the most valuable resources of the state, will soon be restricted and their terrors largely reduced if the people will co-operate with the state forester in the administration of the new forestry law enacted by the last Legislature, which will be ready for distribution in pamphlet form in the near future. One of the most important provisions of the law is that making a closed season for burning from June 1 to October 1, during which period outdoor fires of all kinds are prohibited, except under most stringent regulations and the probability of heavy penalties. In this connection the state forester urges upon every one the necessity of doing all possible burning before the closed season begins, and thus save the trouble and risk of doing it by permission during that season of greatest danger when fire spreads so easily and rapidly. The state forester desires the assistance and co-operation of every one in the protection of property from forest, grass or brush fires, and to this end invites suggestions and information calculated to assist in any manner in the performance of his most important duties. Copies of the law will be promptly furnished to all who desire them. Requests and communications addressed to F. A. Elliott, state forester, Capitol Building, Salem, Oregon, will receive prompt and appreciative attention.



Editor *Better Fruit*:

I enclose one dollar for one year's subscription for "Better Fruit." The sample copy I have is the first one that I have ever seen, and I like it so well that I must add my name to your subscription list. H. G. Fitzsimmons, San Francisco.



# TWO DESTRUCTIVE PLANT LICE OF THE PEACH

BY C. P. GILLETTE AND GEORGE P. WELDON, EXPERIMENTAL STATION, FORT COLLING, COLORADO

**G**REEN PEACH APHIS is the common green peach louse so prevalent early in the season curling the leaves, and often attacking the blossoms and forming peaches in a most destructive manner. The eggs of this species of plant louse



EGGS DEPOSITED ON  
BUD

are deposited on peach trees (occasionally on the other stone fruit trees) in the autumn, where they remain unhatched until early spring. Their detection is not as easy as that of the common green apple aphid egg, but is not extremely difficult when one knows where to look for them. Last fall the eggs were deposited in such large numbers that they could easily be found in a great many orchards. In some cases the buds of the peach twigs were dotted black with them. In most instances these eggs are found deposited on, or very close to a bud, and very often just as deep in wrinkles or depressions as possible, and unless they are plentiful it may require sharp eyes to detect them. When first deposited the eggs are light green in color, turning black after exposure to the air. They are much smaller than the eggs of the common green apple aphid, which nearly every orchardist has seen, but are quite similar in shape, color and general appearance. This pest may live over winter on vegetation that remains green throughout the winter season, so there would be a possibility of trees becoming infested at least late in the season from other sources, even though the eggs were all killed by an insecticide, or failed to hatch because of unfavorable weather conditions or other causes.

The eggs of this aphid hatch very early in the spring. E. P. Taylor reports having found them hatching at Grand Junction, Colorado, on the 16th day of February, 1907. The month of February that winter was unusually warm, and the extremely early hatching of the eggs was due to that fact. However, hatching takes place when the buds have scarcely begun to swell, a fact which is not generally understood by the fruit grower, and one which is of very great importance in its relation to the control of the pest by means of a spray. The past spring eggs were found hatching on the 7th of March at Clifton, Colorado, at which time the buds seemed perfectly dormant.

When first hatched from the eggs these aphids are dark green in color, and may be seen as tiny, dark specks crawling along the twigs, or more often clinging to the buds. It is probable that they can exist for a number of days after hatching with little or no food. What

feeding they do takes place on the buds or very tender bark into which their beaks are inserted, and from which a portion of the early flow of sap is extracted. Plant lice of the spring brood, which hatch from eggs that have remained on trees over winter, are known to the entomologist as stem-mothers. The full grown stem-mothers of this plant louse are of a pinkish or salmon color, and before there is a sign of a peach blossom in the spring, these stem-mothers have begun reproduction. Their progeny are born alive, eggs never being laid except in the fall, and then by an aphid which, though only a different form of the same species, might be taken by the orchardist for an entirely different kind of plant louse. The generation from the stem-mothers differ from the latter in that they are light green in color, with darker green, longitudinal markings on the dorsal surface of the abdomen, but are never pink like the stem-mothers. Just as soon as the buds on infested trees begin to unfold, the stem-mothers, with their progeny, are ready to enter within. At first they seem to prefer feeding in the blossoms, but after these fall quite serious injury is often done by their feeding on the leaves. Probably the greatest injury to peaches resulting from their attack consists in the dropping of the small fruit which has become devitalized from the loss of sap until it can make no growth, hence shrivels and falls to the ground. The injury to the peach is practically all done while it is yet in the husk or calyx tube. After the peach has cast off this calyx tube it is not likely to be molested further by the aphids, and unless it has been too much weakened before this time the probabilities are that it will not drop as the result of aphid attack.

Fortunately this pest cannot, or does not, spend its entire existence upon the peach or other trees, but leaves them for more succulent vegetation. Shortly after the peaches are formed, winged lice begin to appear in the colonies; these fly away to other food plants, and by the last of June very few can be found on peach trees. This is indeed a blessing to the peach grower, for should this pest continue its ravages throughout the summer on the peach it would require great effort and expense to control it. As it is trees often suffer a great loss of foliage, and if it were not for the wonderful power of the peach tree to recover after this injury the result of the aphid attack would be more disastrous.

Gillette and Taylor, in bulletin 133 of the Colorado Experiment Station, gave a list of fifty-three plants growing in the greenhouse which were found to be infested with this aphid, and twenty-five plants growing out of doors, the out-of-door plants comprising most of the common garden vegetables and weeds. The variety of plants upon which this louse feeds during the summer time is so great that it is probable that it will seldom be plentiful enough on any one

kind to do serious injury. While on the summer food plants this aphid is usually light yellow in color, and without the green stripes so characteristic of it while feeding on the peach.

The last winged generation of lice appearing in the fall are known as fall migrants because of the fact that they leave the vegetation upon which the summer has been spent and migrate to peach trees. These fall migrants do not deposit eggs, but give birth to the true sexual forms, males and females. The females are pink in color, somewhat similar to the stem-mothers which were on the trees in the spring, but smaller. After feeding for a time and becoming mature they deposit the eggs previously described.

Because of the abundance of green peach aphid eggs last winter a number of different spray tests were made in the spring with various insecticides in order to determine their value as egg destroyers. The spraying was delayed a little too long, however, and on the 7th of March, when the first applications were made in the W. C. Strain orchard at Clifton many of the eggs were found to be hatching, and there was no trouble in finding the little green lice here and there on the twigs. A great many of the eggs were not hatched at that time, hence the various sprays were tested as destroyers of both the eggs and the young lice. The block of trees sprayed in the Strain orchard, was only three years old, but contained both the eggs of green peach aphid and the hibernating larvae of the twig-borer in abundance. The small size of the trees made very thorough spraying possible. The work was done with a barrel pump, so it was not possible to make the applications with a high pressure. Thoroughness was depended upon to compensate for the deficiency in pressure. Tests were made in this orchard with Rex lime and sulphur, two strengths, namely: One gallon of the "Rex" to ten, and one to eleven gallons of water; Black Leaf tobacco extract, four strengths, namely, one gallon to thirty, one gallon to forty, one gallon to fifty and one gallon to seventy gallons of water; Black Leaf "40," three strengths, namely, one gallon to six hundred, one gallon to eight hundred and one gallon to one thousand gallons of water; soluble oil, one strength, namely, one gallon to twenty gallons of water. Thirty-eight trees in all were sprayed in this test, and five were left without treatment for checks.

On the 8th of March twenty-one trees were sprayed in Mr. M. Paxson's orchard at Clifton. These trees were five years of age, and fully as many eggs of the aphid and larvae of the twig-borer were found on them as in the Strain orchard. The following insecticides were used on this date: Nico-fume at two strengths, namely, one gallon of Nico-fume to six hundred and one gallon to eight hundred gallons of water. Kerosene emul-





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## FIELD OF STRAWBERRIES OF A. R. CUMMINGS AT CANBY, OREGON

This is probably one of the finest strawberry fields on the Coast

sion was applied at one strength only, namely, a fifteen per cent oil emulsion prepared by using a common laundry soap. Black Leaf was applied at one strength, namely, one gallon to fifty-five gallons of water. Home prepared lime and sulphur was applied at one strength, namely, fifteen pounds of lime and fifteen pounds of sulphur to fifty gallons of water. This lime and sulphur was made in the ordinary way and was boiled for one hour, so that a first class lime and sulphur spray was prepared.

On March 28th the peach buds were just showing their pink tips, and several sprays were again applied. At this time three of the tests were made with a mixed spray of arsenate of lead and one of the tobacco preparations, the arsenate of lead being used for the twig-borer and the tobacco preparation with which it was mixed for the aphids. The following insecticides were applied at this time to about one hundred and fifty trees: Rex lime and sulphur, one gallon to ten gallons of water; Black Leaf, one gallon to fifty gallons of water; Black Leaf, one gallon to seventy gallons of water, combined with arsenate of lead three pounds to one hundred gallons of water; Black Leaf "40," one gallon to eight hundred gallons of water; Black Leaf "40," one gallon to one thousand gallons of water, combined with arsenate of lead six pounds to one hundred gallons of water; Black Leaf "40," one gallon to nine hundred gallons of

water, combined with arsenate of lead ten pounds to one hundred gallons of water.

The accompanying table gives the results of the first examination made on March 15, of trees sprayed in the Strain orchard. It may be seen from this table that all insecticides applied on March

Insecticide Used	Strength of Insecticide	No. of Aphids on 6 Twigs From 2 Trees
Black Leaf .....	1-30	2
Black Leaf .....	1-40	2
Black Leaf .....	1-50	1
Black Leaf .....	1-70	1
Black Leaf "40" .....	1-600	0
Black Leaf "40" .....	1-800	6
Black Leaf "40" .....	1-1000	7
Rex Lime and Sulphur...	1-10	1
Rex Lime and Sulphur...	1-11	2
Soluble Oil .....	1-20	0
Check .....		93

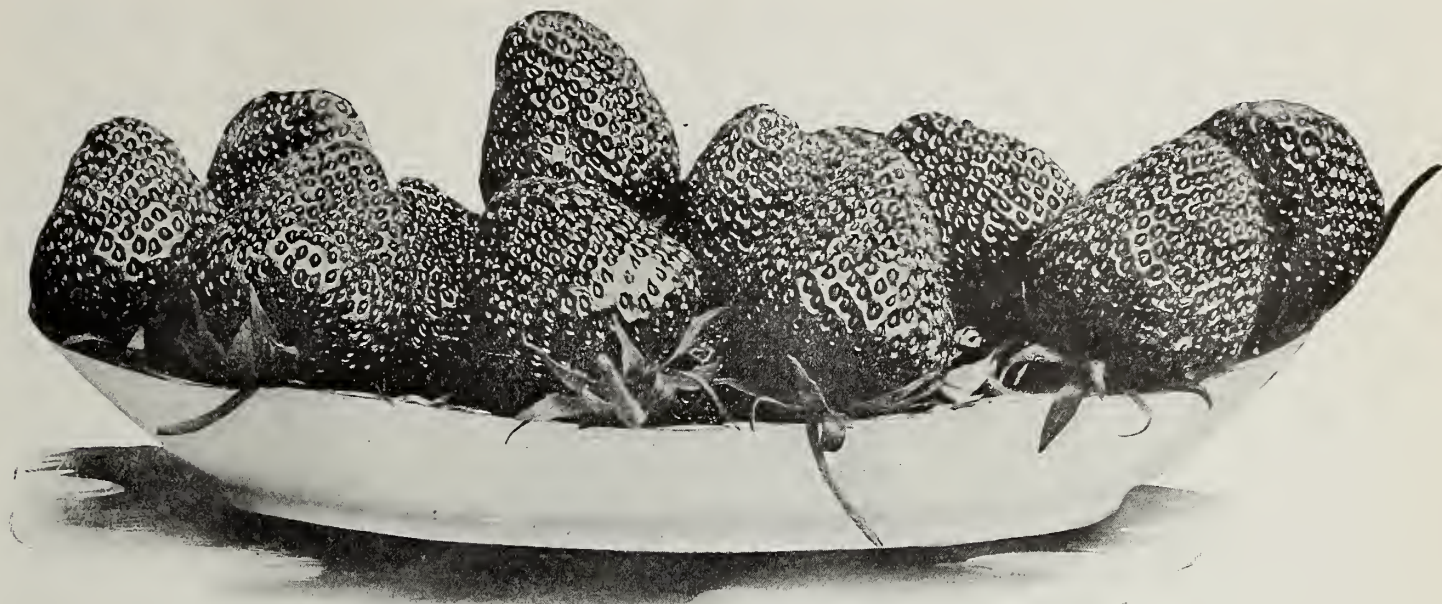
Trees sprayed March 7, examined March 15.

7th resulted in effective control, at all strengths. Three subsequent examinations were made on March 24th, April 26th and May 11th, each one indicating practically the same results. It would seem from this experiment that just as the eggs of this aphid are beginning to hatch is a favorable time to spray for its control. Lime and sulphur proved to be a perfect spray at this time. Apparently it gave a little better final results than anything else used. With the exception of Nico-fume, all the tobacco sprays of both early and late applications resulted in much good, but that lime and sulphur applied on the latest date of spraying did not prove beneficial. This application of lime and sulphur was

made at a time when some of the first lime and sulphur spraying was being done in the valley, but earlier than much of it. The experience of most of the orchardists was that the lime and sulphur did no good applied late for green peach aphid, which tallies with our experience. This season's experiments indicate that the most important thing in connection with the control of this aphid by the use of lime and sulphur is to get it on early; just as the eggs were beginning to hatch was found to be a splendid time. If spraying is delayed until the aphid becomes full grown some other spray besides the lime and sulphur should be used. This spray will not kill the mature stem-mothers unless applied in excessive quantities. The tobacco sprays are much better to use when mature lice can be found. But these preparations are also more effectual at the time when the eggs are hatching. A great amount of material is required in order to be thorough enough to kill most of the lice after they are fully grown.

The average orchardist would probably have a hard time to detect the little lice when they are first hatched, but the importance of spraying at this time should be sufficient reason for him to learn to find them. If this is not possible it would be reasonably safe to say that the lice may be found hatching after the first few days of warm spring weather in February or March, in the





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A DISH OF FANCY DUNLAP AND WARFIELD STRAWBERRIES

vicinity of Grand Junction, and that a spray at such time would be successful. A hand lens, costing twenty-five to fifty cents, is of great service in finding the lice.

On March 25th some large Triumph peach trees were sprayed on the C. H. Dilley place at Clifton. These trees had been sprayed a few days previously with lime and sulphur, but apparently with no success in killing the aphids, which at this time were clinging to the partially open blossoms waiting for a chance to get within. Part of these trees were treated with Black Leaf, one gallon to seventy gallons of water, and the rest with Black Leaf "40," one gallon to eight hundred gallons of water. By exceedingly careful and thorough spraying, entailing the use of at least ten gallons of spray to a tree, it was found that practically all the lice could be killed. The Elberta trees in this orchard did not have so many of the aphids on them, and the manager of the place decided that they did not need to be sprayed. On May 11th an examination of these trees showed the Elbertas to be badly infested, and the Triumphs, which we had sprayed, were exceedingly clean. The difficulty experienced in spraying trees so late in the season lies in the fact that the leaves always tend to curl and provide such protection for the lice that only the most thorough work can result in much good.

No matter when the spraying may be done for the control of this insect success cannot be attained unless a very thorough application of the insecticide is made. In fact this is a general rule that will hold good in spraying for the control of all insect pests. While this point is always emphasized by entomologists, our experience with orchardists has been that many do not have a proper conception of what thorough spraying means. This may be due in part to the failure to appreciate the fact that insects multiply tremendously in a short time,

and unless a spray kills practically all of a pest, such as the one in question, a few days or weeks may see them as plentiful as they were before the spray was applied. Spraying investigations in the orchard also indicate that much of the trouble is due to the expense of a proper treatment. Most of the insecticides used are very high priced, and the orchardist does not feel that he can go to the expense necessary to thoroughly treat his trees. He very often fails to realize that work such as this, half done, is really work wasted, to say nothing of the expense.

It is safe to say that spraying for the control of the green peach aphid can only be successful when very great care is used to thoroughly drench every portion of infested trees. The many experiments conducted has brought us to these conclusions: 1, lime and sulphur, both Rex and home prepared; Black Leaf extract, Black Leaf "40" and soluble oil may be effectively used for the control of the green peach aphid when applied in the early spring, just as the eggs are hatching; 2, a lime and sulphur spray is not effective when applied two weeks or more after the eggs are hatched, for at this time the stem-mothers are mature, or nearly so, and are able to resist the action of this insecticide; 3, good tobacco preparations may be used with success any time after the aphids hatch, but it is more difficult to succeed late in the spring because it is then more difficult to get the spray on all the lice on account of the protection of the leaves; 4, the best time to spray for this insect is in the early spring, when the eggs are hatching.

As an enemy of the peach, black peach aphid has never been of much economic importance in Colorado. It has been found from time to time in the peach growing sections of the western slope, but apparently has not been able to continue for any length of time in orchards

where it has been introduced. Notwithstanding the fact that up to the present time it has never made any headway in the orchards, it is well for the peach growers not to take any chances in orchards where it does appear, but to be prompt in making a very thorough application of Black Leaf, or some other good contact spray to infested trees. The fact that this pest has the habit of feeding upon the roots as well as the twigs of peach trees makes it one that is dreaded. Because of its ability to live below as well as above ground it might become a serious pest if conditions should happen, at any time, to be favorable to its development.

Very often peach nursery stock coming from an infested nursery is found to be badly infested with this aphid. When such trees are found they should either be carefully fumigated with hydrocyanic acid gas or sprayed with a good contact insecticide, such as Black Leaf, kerosene emulsion or whale-oil soap. Figure 5 shows a section of a peach twig on which is a large number of these aphids. This twig was cut from a tree which had just been removed from a box shipped into the state from an outside nursery. There were so many aphids in the box that they found their way through cracks and could actually be seen crawling on the outside in considerable numbers. The box bore a fumigation tag, and the inspector, whose duty it was to look over all shipments of nursery trees into the county, rightly condemned all the trees in the box. The dark color of the adult lice and their habit of feeding on the tender bark rather than the leaves enables us to separate this louse readily from the foregoing species.

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Editor Better Fruit:

Although I take several other fruit journals and papers, I consider "Better Fruit" worth all the rest of them at the same subscription price. Joseph Weston, Belton, Mississippi.



# THE FRUIT INDUSTRY OF THE GREAT NORTHWEST

BY E. H. SHEPARD, EDITOR "BETTER FRUIT," AT FRUIT JOBBERS' CONVENTION, SACRAMENTO, CALIFORNIA

**A**FTER being engaged in wholesale business for some twenty years I spent a few weeks' vacation in Hood River Valley. This wonderful valley, with its beautiful scenery, its splendid climate and its intelligent people, charmed me beyond expression. The spell I was unable to resist, and consequently I became a fruit grower, and soon after manager and director in the Hood River Apple Growers' Union, which position I occupied for several years, finally retiring from the management, but continuing to be a director. I speak of the Hood River Apple Growers' Union because I believe it illustrates certain principles of value to the fruit dealer as well as the fruit grower. I believe the Hood River Apple Growers' Union is founded on true principles; the Union is co-operative, each stockholder must be a grower, the amount of stock a stockholder can hold is limited, all of which are essential for continued success. Perhaps the most important achievement of this Union from your point of view is its pack. We were first to put up a pack of apples where the apples in the middle were as good as they were on the top layer and the apples in the bottom as good as in the middle. We put up a pack that we could, and did, guarantee. Other districts have followed, and the standard of the fruit industry of the Northwest has raised until now nearly every district commands the confidence of the dealer.

I believe it is of interest to every one of you gentlemen present to encourage every fruit growers' association with your support. The association can, and does, do for you what you cannot reasonably expect independents, as individuals, to perform. The association has a thorough system of inspection, and I believe, gentlemen, you want, and we want, inspection at our end of the line just as much as you need it, and we want it at your end of the line. The association can put up a pack that is not only uniform, but a pack that they can guarantee. I honestly believe that you will get fruit in far more satisfactory condition from the association than you will from individuals, for the reason that it will be properly packed, thoroughly inspected and guaranteed. I will not dwell upon what you may get from the individual shipper because you have had sufficient experience in the past in a general way to know what you may expect. Permit me to admit that there are individual exceptions, of course.

It is my pleasure to say today that I believe the grower and dealer are nearer together than they ever have been before in the history of the fruit industry, and I believe the closer they get together in the future the more profit there will be in the business for both. There is no question but what much of the dissatisfaction that has existed between the dealer and the grower can be eliminated. I believe the dissatisfaction has been partially your fault and partially ours.

The grower did not know how to pack his fruit, he did not know how to grade it and he did not know the proper ripeness for picking. When low returns come in with bad order reports the grower censures you, which leads me to offer a suggestion. I believe every fruit dealer should give more attention to the inspection of a car on arrival. We fruit growers often get reports like this: "Car arrived off condition," "Too Ripe" or

would be advisable if such report could be in the form of a sworn statement. Now, I do not want you to infer that I am telling you how to run your business, but I believe if you know the fruit grower at the other end as I do it would enable you to devise a ways and means that would meet the situation, protect you in your business and protect your reputation. I also believe such a method will be far more effective in convincing the grower than the ordinary short personal "Off Condition" report made over your own signature.

I believe the fruit grower needs and must have the jobber, the dealer and the commission man. I do not wish to suggest any system that will hamper you in your business, but on the other hand, it is my aim to assist you if possible, and if I am successful I feel I am assisting the fruit grower. I realize the magnitude of the fruit business and I understand that this business must be divided. The fruit industry is similar in many ways to other industrial enterprises. A factory, for instance, is divided into a manufacturing and a selling force. The fruit industry itself must be divided. Growing fruit is one business and selling fruit is another business. The selling end must necessarily be again divided—the association selling the dealer or jobber, the jobber selling the retailer and the retailer selling the consumer. I do not believe that the fruit grower will find it practical to eliminate any one of these important and necessary factors in distributing his fruit. I imagine that in years to come fruit will be handled through the same channels in much the same way as it is today. However, I firmly believe that conditions will be improved, and I might add there is room for improvement. I have given the matter considerable attention and am satisfied that, generally speaking, the jobber or commission man is not making an unreasonable profit. I am convinced, however, that the retailer is. I know of many instances where the retailer's profit is not only exorbitant, but outrageous. I know of Hood River apples which cost the retailer three dollars per box, or thirty cents per dozen, being sold for one dollar and fifty cents per dozen. I know of apples that cost the retailer two dollars to two dollars and a half per box being sold at seventy-five cents, one dollar and one dollar and twenty-five cents per dozen. Now, some may say in answer to this that the expense of doing a retail business is high. I am willing to admit this may be, and frequently is, true. However, I am told that the retail profit in the grocery business is about seventeen per cent to eighteen per cent in modern stores, in the best localities, but the same groceryman wants a profit of from two hundred to four hundred per cent on his apples. Too much profit is made in retailing fruit. To illustrate, I will give you a specific case. In Washington, D. C., an Italian fruit seller who occupies a small store in which he carries



PEONIES

"Frozen." It seems to be human nature for the average grower when he gets such a report to conclude that you are untruthful, and he sincerely believes he has been skinned. In my travels I have seen cars arrive on the market, many of which were unsalable due to the grower's fault in some manner. Permit me to offer for your consideration, if you please, a suggestion. When a car arrives off condition or not up to the standard you should have some system of public inspection that would be complete and thorough in every detail; you should have an inspection report rendered by some broker or public fruit inspector who is not interested in or connected with your business, and I believe it



about fifty dollars in stock at one time, after paying all running and living expenses, sent \$3,000 to Italy in one year. I believe these exorbitant retail prices are preventing the consumption of fruit and are limiting the amount of business that you gentlemen are doing. The greater the consumption of fruit the greater will be your business, and the larger the business you do the more profit you will make. It is consumption that the fruit grower wants; it is consumption that your business wants. We both have the same object in view; therefore we can assist each other. Our profit is not too large; I grant that your profit is not too large, but I do claim that the profit of the retailer is exorbitant, and I believe that you, being in closer touch with the retailer than we are, should give this important matter serious consideration and if possible devise a way and means to control and regulate retail prices on fruit. We know that the retail prices are not only controlled, but regulated in many lines of business. I will cite you a specific case in the fruit business. The Puyallup Berry Growers' Association, which handles the raspberry crop of that valley, in past years sold their berries to the dealer, who sold them to the retailer, who retailed them at twenty cents per quart, and sometimes more. The berries netted the association one dollar and ten cents per crate. As raspberries are very perishable the markets which could be reached were somewhat limited and the territory that could be supplied in past years was not large enough to consume the entire raspberry crop of this valley at these figures, and, therefore, a large per cent of the crop had to go to the cannery. Last year the manager put into effect a new policy; he made a trip East and contracted with the dealer at a certain figure so that the dealer would have his legitimate profit, and he made contracts with the retailer so that the retailer could get these raspberries laid down at two dollars per crate, guaranteed, provided he would retail them at ten cents per quart. This arrangement was so successful that the territory consumed the entire crop of berries on an increased acreage, and it being only necessary to send such berries to the cannery as were too ripe for shipment. The surprising part of it all is that when the berries were retailed at ten cents per quart instead of twenty cents the berry grower netted one dollar and thirty cents instead of one dollar and ten cents per crate. I think this object lesson worthy of consideration as a plea for reasonable retail prices.

The Citrus Fruit Growers' Exchange in California offers us another example which is worthy of a moment's attention. I understand that the Exchange so conducts its business that ordinarily a box containing one hundred and fifty oranges is sold to the retailer, delivered, at two dollars and forty cents, which enables him to retail them at thirty cents per dozen, making a good profit. Thirty cents per dozen means two for a nickel, or four for ten cents. I believe such

prices as these on medium sized apples of good quality will be important factors in increasing the consumption. We must create a greater distribution and establish reasonable retail prices if we want to market the increased crop of fruit to advantage in future years. I will cite another instance to illustrate both of these features. A few days ago a Hood River man received a letter from a friend who lives in Memphis, Tennessee, who stated that at last a car of Hood River apples had reached Memphis, and added that they were being sold at one dollar and twenty-five cents per dozen. These apples could have been sold at thirty cents per dozen retail, which would have paid the freight, given the retailer and the jobber a legitimate profit and still leave good money for the fruit grower.

Another point that I believe is worthy



CHILI PINE

of your consideration toward securing an increased consumption is selling retail by the box instead of by the dozen. A consumer who buys a box of apples will use more apples and use them faster than the consumer who buys a dozen. I was told by some of our people who have just returned from New York City that in all the large stores where fruit is being handled that not a single box is placed on sale in a retail way. Not long ago a friend of mine who lives in Portland called at one of the big grocery stores in New York and wanted to buy a box of apples, and he was told that they did not retail them by the box, but that they sold them by the dozen only. Gentlemen, if you want to do more business you must endeavor to increase consumption, and I think by creating a sale for apples by the box will assist in doing it. Exactly the opposite of selling apples by the box is also true. Some package should be perfected not only for apples and oranges, but for other fruits, that would contain a small quantity already done up ready for the purchaser. I believe we need, and should have, a package that would hold a dozen apples, a dozen oranges or a dozen of some other fruit, and such packages should be made of such size and shape so that six,

eight or ten of them might be put in an ordinary sized case.

Mr. A. C. Rulofson, Monadnock Building, San Francisco, California, is the inventor of a small package which bids fair to be an important factor for increasing the retail sale of apples. The paper bag is a very inconvenient package in which to carry home a dozen apples, particularly if you get into a crowded street car and hang on to the strap. You know the bag will burst and, therefore, you won't buy the dozen apples. The package made by Mr. Rulofson is composed of corrugated paper, holds a dozen apples and is supplied with a small, neat wooden handle similar to the ones used on shawl straps. It is a very convenient package and one which the retail fruit dealer can have ready for immediate delivery—one that will not go to pieces, and one that the customer can conveniently carry in the crowded car or anywhere else.

There are many other features connected with the fruit industry which are important that will be so ably covered in an excellent address by the manager of the Hood River Apple Growers' Union, who follows me on the program, that it will be unnecessary for me to discuss them. However, I want to emphasize the necessity for closer relationship, more sincerity, between the grower and the dealer. Pardon me for being frank in saying that this spirit is lacking. Your representatives come to us fruit growers, and after exchanging a few courtesies, get down to what they call "brass tacks" and begin to tell us of the enormous crops we are going to have this season in all the different sections of the United States. On the other hand, the grower is just as bad and hollers "light crops." One is "bearing" the market and the other is "bulling" it. Gentlemen, this is all wrong. I do not believe it is always your policy, but it is frequently the policy of your representatives. If two men want to do business sincerity is the best policy. If two men are frank with each other they will do business more satisfactorily, quicker and at less expense. Therefore, let us both be liberal in our system and in our dealings, and we will get better results and be happier.

The Northwest is already a great fruit country, and is rapidly growing. It will be the greatest apple producing country in the world. We have the climate and the soil to produce perfect apples, apples beautiful in color, unsurpassed for their excellency in flavor, keep and size. The fruit growers are an intelligent people, people of ability, people who will get results. Permit me to quote a short paragraph from *The Spectator*:

"The Spectator has lingered on the commercial side of this apple raising country, as it is at that side which has attracted capitalists, professional men and college graduates to try their hand in fruit culture and country living, but aside from the perfect apples which have given the valley its fame, there are scenic attractions which would cause one to linger here, but he who lingers is lost,





MAGNOLIA SOULANGEANA

and straightway buys an orchard and devotes himself to the raising of apples. He cannot help it; the very air is charged with apples; the theme of all conversation is apples; the apple orchard is ever before one's vision, and it is a strong man who can resist the call."

It is our climate, our soil, our spirit of enthusiasm, as indicated above, which is making the Northwest the greatest apple producing section in the world. Our enthusiasm, aggressiveness, energy and ability cannot help but spell success.

My position in the fruit world is somewhat unique. While I am a grower and am a director of the Apple Growers' Union at Hood River I am also the editor and publisher of "Better Fruit." It has been my aim, my ambition, if you please, to make "Better Fruit" not only the best, but the most influential fruit growers' paper in the world. I do not believe this can be accomplished unless it is absolutely fair and square with everybody connected with the fruit business. It is my desire to bring the fruit dealer and the fruit grower closer together. To do this the good will and esteem of both the dealer and the grower must be secured. This cannot be done without being fair with both. If "Better Fruit" can help you in your business it will help the grower. On the other hand,

if it helps the grower it will help you in your business. "Better Fruit" is helping the grower to grow better fruit, to grade it better and to pack it better.

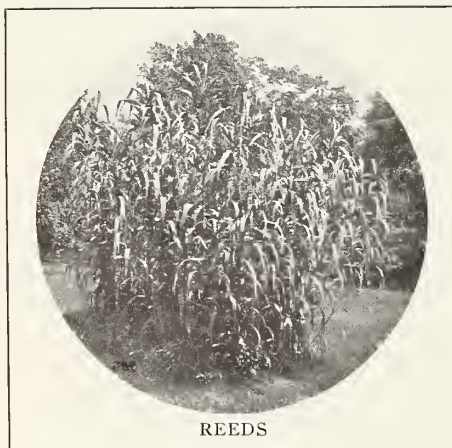
We fruit growers are in a state of evolution. We are developing, and I believe frankly more improvement has been made in the growing of fruit in the last few years than in marketing and selling fruit.

Just a few words about over-production in general and over-production of apples in particular. We have all heard this over-production talk for years. I have heard it ever since I was a boy, and yet it is a well recognized fact that there has never been a continued over-production of any food commodity. When vast areas were planted to wheat in the Northwest the cry went up, "Over-Production," but today the price of wheat is higher than it has been for years, and authorities who have given the matter careful study state that in a few years the United States will not grow enough wheat to feed its own people. I will not worry you with statistics about the apple crop. You all know them. Suffice it to say, however, that from 69,000,000 barrels of apples in 1896 we have fallen to an average of 25,000,000 barrels during the last three years. It seems strange to fear over-production with a decreasing crop on an increased acreage. You must bear in mind further, for it is a matter of fact, that only ten per cent to twenty per cent of the orchards that are set ever make commercial orchards. The population of the United States in the last ten years has increased to over 90,000,000. The apple crop has decreased in a greater ratio. But the consumption of fruit, I mean all kinds of fruit, during the last thirty years in the United States has increased five times as rapidly as the population. However, we may have a temporary condition of under-consumption, arising from a lack of proper distribution and prohibitory prices. The success of the whole fruit industry seems to depend on a proper distribution and

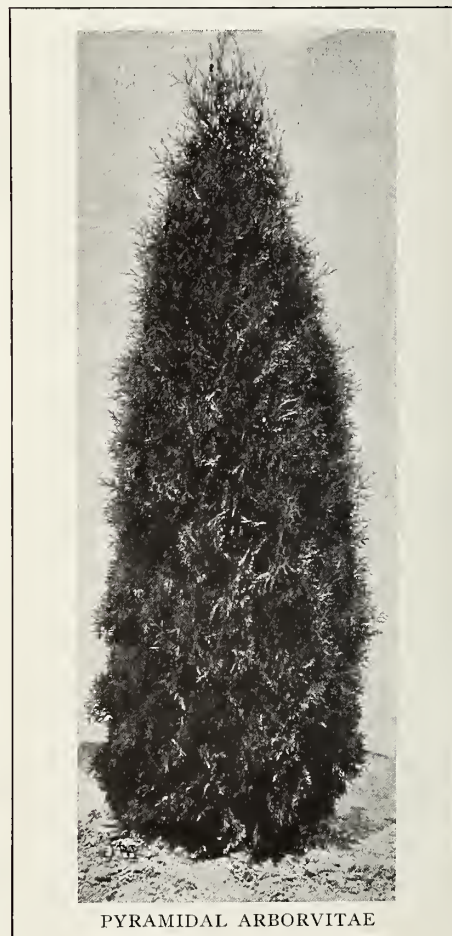
intelligent marketing. Again, gentlemen, this is your end of the business. Consumption can be created by proper distribution if the prices are right. To illustrate what can be done in the way of increased distribution I want to tell you that the Hood River Apple Growers' Union, which depended almost entirely upon New York to take its output in previous years, this year has sold to twenty-four states, sixty-five cities and eighty-seven different buyers.

Just a word about the so-called immense boxed apple crop of the Pacific Coast. It is estimated, perhaps an exaggeration, that the crops in Colorado to the Pacific was 15,000 cars of apples during 1910. At 600 boxes to a car and 100 apples to the box this would mean 900,000,000 apples. If this crop was so distributed and the price right, so that every inhabitant of the United States could eat one apple a day for ten days, they would eat up this so-called "immense" apple crop of the Northwest in just ten days. The California orange growers howled "over-production" when they shipped 1,400 carloads of oranges in one year, but that crop has increased, and they are now selling over 40,000 cars per year, and I am told the orange growers today are making better money than in previous years. Apparently the Citrus Exchange has been successful in properly distributing their fruit, regulating prices in a way to increase consumption sufficiently to care for their increased output.

I believe the jobbers should unite in demanding quality of fruit and proper



REEDS



PYRAMIDAL ARBORVITAE



grading, even to the point of refusing to accept any carload that is not up to the standard of grading. It is good fruit, attractive fruit, that increases consumption. Ordinary fruit, rotten fruit, interferes with consumption. The dealer and the grower both know this, and the grower should be compelled to govern himself accordingly if he doesn't see fit to do so otherwise. Therefore, it seems proper that both the grower and the dealer should adopt as a motto, "Quality

first, quality last and quality all the time."

California is a wonderful fruit state, famous for its many varieties of fruits—oranges, lemons, olives, grapes, peaches, figs and others too numerous to mention. While I have not seen the statistics for this year, I presume the crop must be almost \$100,000,000. The varieties of fruits grown commercially in the Northwest are not so many as in California. Our principal varieties in a commercial way are apples, pears, prunes, peaches

and cherries. While no figures have yet been given out, probably the fruit crop of Oregon, Washington and Idaho will be somewhere in the neighborhood of \$20,000,000 for the past year, the fruit industry of the Northwest being the fourth industry of our country. These facts cannot help but convince us of the magnitude and the future importance of the fruit industry for the Northwest.

The fruit business is about the only line of business of importance that I know of that is done on a consignment basis, and frankly and honestly, gentlemen, the quicker we get on a buying and selling basis the better it will be for everybody. The fruit business can be conducted on these principles the same as any other business. Purchases can be made at an agreed price for certain kinds of fruits, packed according to certain grades, a thorough inspection made at the shipping end and the grade guaranteed, so that the buyer will know just what he is getting and just what it will cost him laid down, this to be subject to final inspection by authorized inspectors, when necessary, at your end of the line, which will protect you and compel us to live up to our agreements. This will do away with much of the dissatisfaction that has arisen in the past through consignments, and every grower will know just what he is selling the fruit for and every dealer will know just what the fruit is going to cost him. This certainly seems preferable to the uncertain, indefinite results that come from the consignment business.

I have talked with a great many fruit dealers on these subjects during the last few years and in nearly every instance I find that high class dealers are in favor of buying from associations, and many have expressed themselves in favor of f.o.b. purchases in place of consignment.

Gentlemen, we are engaged in a great big business, which is rapidly increasing, and with many difficult problems to be solved in the future. Your interests and our interests are mutual. It must be our aim to give you better fruit, better grading, better packing, and guarantee it. This will enable you to sell for better prices, which means more money for you and more money for us. We are all after the "almighty dollar." Therefore, let us work hand in hand. Our success will be greater united than divided.



BEAUTIFUL PORTLAND ROSES

Bessie Brown

Frau Karl Druschki  
Frau Karl Druschki Blooming in Nursery Rows  
Richmond

Madam Caroline Testout



# CHERRY HEAVEN—WERE FIRST GROWN YEARS AGO

BY PROFESSOR H. E. VAN DEMAN, WASHINGTON, D. C.

**J**UST when and where the culture of the cherry was begun we will never know, but it was in the long-ago, probably before the days of Grecian and Roman civilization, and from what can be gathered from history Southern Europe was the place of its nativity. That cherries have been a popular fruit there is no doubt, and when the home-seekers from beyond the seas landed on the American continent they were not long in planting seeds of this choice fruit in their new homes. This was done by the pioneers on the shores of both oceans, and success rewarded their efforts in nearly all sections except along the Gulf of Mexico, where the climate was found to be too warm. The cherry tree, no matter what the species or variety, loves a moderately cool and equable climate. Sudden changes from mild to frigid temperatures, or the reverse, are a very serious hindrance to successful cherry culture, and with many varieties are fatal, although a steadily cool or warm climate may be very favorable to them.

There are many species of the genus *Cerasus*, to which all the cherries belong, both wild and cultivated, native and foreign. We have in America several species that attain gigantic size and are classed among the large forest trees, their lumber being of great value for making furniture because of its fine grain, hardness, durability and rich, reddish color. At one time it rivaled mahogany in popularity, and would be so now if the supply was not almost exhausted. But from none of our native species has there been developed as yet any variety that is of real value as an edible fruit-bearing tree, although some of them are barely eatable; nor have any of them, so far, proved to be very serviceable as stocks upon which to bud or graft the cultivated kinds because of their mutual uncongeniality.

In Japan the great spring festival is that of the time of cherry blooming, and next to the chrysanthemum the cherry tree is the most popular of all their floral triumphs. We in America have been slow to import the many varieties of Japanese ornamental cherries and add them to our garden decorations, but it is being done now to some small extent. Strange as it may seem, those enterprising people know almost nothing of the cherry as a fruit, for none of the trees they grow bear fruit of any value for eating. Many of them have double flowers and bear no fruit at all.

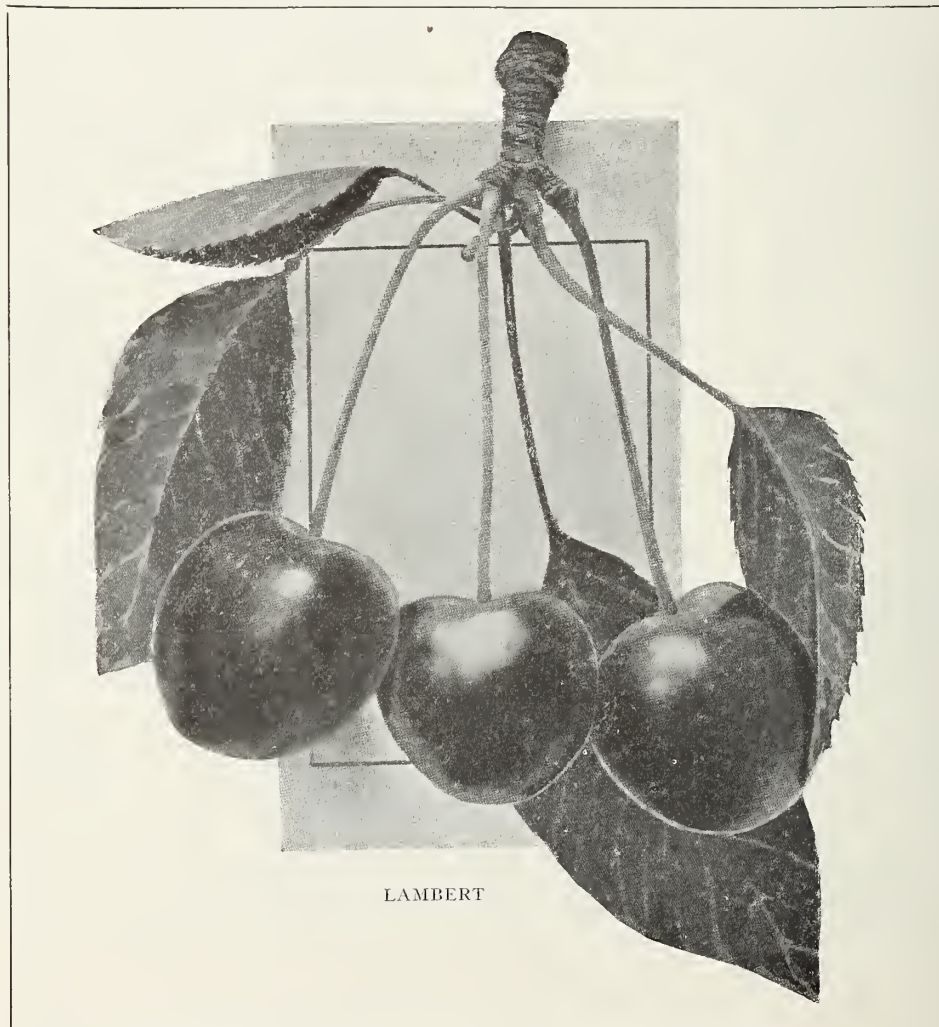
The European cherries, on the contrary, are the great fruit bearers of all the world. They are divided into at least two botanical species, and of these there is an untold number of varieties, but so far as I know there are no crosses or hybrids between these two species. It would seem that there is great opportunity for the production of new varieties of value by the artificial cross-pollination of some of the best of the old ones, and possibly by introducing the charac-

teristics of some of our native species, provided they are not too diverse to be cross-pollinated.

With the development of American horticulture the cherry was carried to the remotest corners of the country and tested in the most practical way by those who did the pioneering. In the rich soil of Pennsylvania, Maryland and Virginia the different classes all flourished and bore abundantly. The Mazzards, which was propagated mostly from seeds, had many varieties that made tall, pyramidal trees more than fifty feet high, and with trunks three feet and more in diameter. Such trees sometimes bore fifty bushels or more of cherries, but they were usually small and unsalable, and anyone who wanted them could have them for the picking. There are such trees yet standing in the hilly sections of the Appalachian range that are healthy and vigorous, although very old.

The mission fathers from Spain planted cherry seeds in California long ago, and the trees were found to succeed there very well. But the most notable and by far the most successful of all the experiments made in new territory was by the Lewellings, who crossed the plains and mountains from Iowa to the Pacific Northwest. They went to the great Oregon country more than fifty years

ago, carrying fruit trees of several kinds by ox team, and finally located on the eastern bank of the Willamot (this is the original and correct spelling, and was used by Washington Irving and other authorities) River, where is now the present town of Milwaukie. There the cherry trees flourished and bore abundantly. Seeds from them were planted and new varieties originated that were better than the old standards from which they came. The Mazzard type was the one that gave the greatest results, and such varieties as Napoleon and Tartarian were used as parent stocks. There are today no better varieties grown than those originated at the old Lewelling homestead, the Bing being perhaps the most notable of all. It was named in honor of a faithful Chinese workman on the place, and this name is now known on every continent and will go down to the centuries to come as belonging to one of the best cherries that has ever blessed the world. And it is not the only good one that came from the Lewelling experiments. I have been there to see the old trees that are left and the birthplace of the cherry industry of the Northwest. The humble efforts of these good men bore fruit far beyond their expectations. As cherry culture grew apace it spread over the entire



LAMBERT





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PRIDES OF MICHIGAN, GROWN BY JACOB FRESE, MICHIGAN

Willamot Valley, into the Umpqua and Rogue River countries and up the Columbia to The Dalles; to Walla Walla, to the Puget Sound region and finally all over the irrigated sections of Oregon, Washington and Idaho. California, likewise, proved to be well suited to cherry culture. Verily, the Pacific Coast is a Cherry Heaven.

To the Eastern visitor, although he may be a cherry grower of long experience, it is a revelation to see the cherries that grow from California to British Columbia and eastward as far as the foothills of the Rocky Mountains. The trees seem to be perfectly at home and they bear almost without a single failure, and usually so heavily as to surpass belief. Last year there were hundreds of branches cut from the heavily laden trees and brought to the Alaska-Yukon-Pacific Exposition at Seattle, Washington, from many sections of the Northwest to show how the fruit really hung upon them. At the Yakima County exhibit one day some Eastern ladies were looking at several of these branches, and I overheard one say to another, "See how nicely those cherries are tied on the branches." Although it was none of my business (for my duty was to judge the fruits, which I was just then doing) I said to her, "You can untie and eat some of them if you like," and she at once began to look for the strings, and not finding them, said, "I don't see where they are tied." To which I replied, "No, because the Good Lord tied them on," and then they wondered more and more, but went away believing that cherry trees could not really hold such big loads of fruit. And it is really wonderful how they bring to maturity such tremendous crops of large and luscious cherries, and rarely with a blemish. There is not a wormy cherry in all that region, for there are none of the insects

there that cause this trouble in the Eastern States. Likewise it is seldom that cherry rot occurs, except during rainy spells that cause the ripe or ripening fruit to crack, and then the air causes decay. Rains seldom occur at that season of the year, and only in some sections. The dry air and almost entire absence of rain during summer time east of the Cascade range is better for the cherry-crop than the climate west of it, although some of the best cherries I have ever seen were grown on the shores of Puget Sound.

It has never been my privilege to attend one of the "cherry fairs" of the Pacific Coast, but I have seen extensive displays of the fruit at expositions, both East and West, for many years past, and I have been in the orchards at all seasons of the year, and know from sight and taste the truth about the region I call Cherry Heaven. There is nothing equal to it in the Eastern and Central States, and there never can be because of the peculiarly favorable climate and soil combined. Whether it is volcanic ash, disintegrated basalt or glacial drift, these soils all suit the needs of the cherry trees. They grow and spread their branches wide and high; the glossy fruit hangs among the dark green leaves along the branches in such profusion that it is no wonder those who had never seen the like before thought the cherries were tied on by artful man.

The size of most varieties, whether sweet or sour, is usually much larger than the same of Eastern growth. There is nothing strange in seeing boxes of cherries prepared for market that exceed an inch in diameter and I have seen several ten-pound boxes that averaged an inch and an eighth. For many years past I have occasionally measured specimens that were more than an inch and a quarter in diameter, grown in California,

Oregon and Washington. No doubt Idaho and British Columbia can do as well. And the quality of the Western cherries is as good as their looks. The sweet varieties are really sweet and the sour ones are sour, although the flavor of most kinds is mild, subacid and very pleasant. The large subacid or sweet varieties with firm flesh are grown extensively and almost exclusively, for the sour varieties are not only smaller, but too soft for Eastern shipment, and therefore only grown for home use and in small quantities.

The Eastern market for cherries is always good, especially for the higher classes, such as will sell at good prices at the fancy fruit stands. And there is little danger of Eastern competition, because there is no other section where the same grades can be grown. The nearest approach to it is in Northern Michigan, where cherry trees under good culture yield splendid fruit and usually in abundance. I have often been in an orchard of over two thousand trees near Frankfort, where the trees and fruit both reminded me of those of the Pacific Coast. The climate and soil are well suited to the cherry and the owner understands the culture and packing of the fruit about as well as the Western growers. The prices obtained have usually been satisfactory, but hot and very damp weather has sometimes caused severe losses from rot. The Western cherries are firmer in flesh and will stand shipment across the continent with little loss from this cause.

The most popular varieties grown on the Pacific Coast are Bing, Lambert and Napoleon, the latter being usually called Royal Ann over all that region. There are almost none of the old varieties grown extensively except Napoleon, but it is now perhaps the most popular of all because of its bright rosy color, large size, pleasant flavor and ability to bear long shipment well. The Bing and Lambert are both dark, purplish red, and attain even larger size and stand shipment equally well. They are gaining a strong foothold and will probably soon exceed Napoleon in general favor; the Oregon, Hoskins and other new seedlings of Western origin are being tested and in time to come still newer varieties may surpass all that have gone before. What may we not expect of the future of Cherry Heaven?



**GOOD APPLE PROSPECTS.**—Reports from different sections of Western New York agree that conditions for a good apple crop are promising. The weather has been cool nearly all the time and there has been no rapid budding of the trees, as was the case in March, 1910, when a period of warm weather was followed by a sleet and snow storm in April, blighting the blossoms. Peaches this year have not entirely escaped, but it is the opinion of a large number of growers that a large part of the crop will ripen. Fruit trees of every variety are now about in normal condition. Prospects for berries are good, as they have wintered well. Reports today from the Southern Ulster fruit belt, one of the biggest fruit sections in Eastern New York, were to the effect that the outlook is encouraging. A prominent fruit cultivator said: "There has been enough evenly balanced cold weather to liven the fruit trees up well and yet hold back buds, and now that warm weather is about to come it is evident there will be a large fruit yield. The peach crop in this section will be especially good."



# ORCHARD SPRAYS AND SPRAYING SUCCESSFULLY

BY A. B. CORDLEY AND H. S. JACKSON

**K**NOWLEDGE of a multiplicity of sprays is not essential to success in spraying. Equipped with an understanding of the range of usefulness of three or four standard sprays, with a determination to do thorough work, one is as well fortified as may be against orchard pests and diseases.

While it is true that most growers of experience understand the general theory of spraying it is considered desirable for the benefit of the novice to emphasize certain fundamental principles, a knowledge of which is essential to the proper selection and use of remedies for orchard diseases or insect pests.

It should first be thoroughly understood that spraying is not a cure all. There are many diseases and some insect troubles of the orchard for which spraying is of no value, either as a preventive or cure.

Fortunately most of the important orchard pests and diseases may be held under control by proper spraying. It is important to note, however, that in order to do effective spraying against any pest it is essential that the proper spray be used at the proper time for that particular pest. A spray which is effective against one pest may be totally ineffec-

tive against another, even if applied at the proper time. The proper spray for any pest applied at the wrong time is as useless as no spraying at all.

It is, therefore, of prime importance that every grower should know what diseases and insects are prevalent in his district, that he be able to recognize them when he sees them and practice the proper methods of control.

The proper time at which a spray should be applied and the proper spray to be used is determined by the life history of the organism causing the trouble, whether it be an insect or a fungus, or bacterial disease.

It is not the purpose at this time to discuss the life history of orchard pests, but rather to give general directions for the preparation and use of the common sprays.

Under the head of insecticides are included those sprays used primarily to combat insects. To understand the general principle which underlies the selection of the proper remedy to be used for any particular insect one has only to know that nearly all insects may be divided for practical purposes into two great groups, viz.: Chewing and sucking insects.

**Food Poisons**—For combating chewing insects, that is, those which actually chew and swallow the tissues of the plant on which they feed, a poison must be used. The surface of the parts of the plant on which such an insect feeds must be coated or sprayed with some poisonous substance which will not injure the plant yet will kill the insects which feed upon the parts thus coated.

(a) Arsenate of lead is now the chief poison used in spraying for the codling moth. Many commercial brands are to be had, and so far as our observations go all are reasonably pure. The various brands may, however, be arranged into two more or less definite groups, which may be termed the acid arsenates and the neutral or normal, or Ortho arsenates. While the evidence is not conclusive it appears to be true that the acid arsenates cannot so well be used with the lime-sulphur solutions as can the neutral arsenates.

Most manufacturers advise the use of three pounds of arsenate of lead to fifty gallons of water. The Washington Experiment Station has demonstrated that in the dry climate of Eastern Oregon one pound to fifty gallons gives equally good results in controlling codling moth. We have found that two pounds are sufficient in the Willamette Valley.

If it is desired to use a combined insecticide and fungicide arsenate of lead may be added to bordeaux or lime-sulphur solution in the same proportion as when water is used.

**Contact Insecticides**—For combating sucking insects, that is, those with sucking mouth parts which pierce the plant upon which they feed and suck juices, a spray must be used which will kill such insects by acting externally on their bodies, since they secure their food from beneath the surface and cannot be made to eat the poisons. A spray of this sort is known as a contact insecticide.

(b) Kerosene Emulsion—Kerosene oil, or coal oil, is a powerful insecticide. The undiluted oil is, however, liable to seriously injure plants to which it is applied. This difficulty is overcome by forming an emulsion with some substance that it may be readily diluted with water. Soap is most commonly added for this purpose as follows: Kerosene oil, two gallons; hard soap (preferably whale oil), half pound; water one gallon. Dissolve the soap in the water by boiling. Add the suds, boiling hot, to the oil. Churn the mixture violently with a spray pump until it becomes a thick, creamy mass. If perfectly emulsified the oil will not rise to the surface even after standing an indefinite time. Such an emulsion may be used immediately or kept as a stock solution. Before using dilute one part of the stock emulsion with eight or ten parts of water. This will be found to be an efficient remedy for green aphids, woolly aphids, red spider, mealy bugs and certain scale insects.







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A DISH OF HELEN DAVIS. THE LATEST ORIGATION IN THE STRAWBERRY WORLD

(c) Black-Leaf is used especially for plant lice, but may also be used for various other sucking insects, as the leaf-hoppers and the apple tingis. Use in the proportion of one part to sixty parts of water or lime-sulphur.

(d) Black-Leaf 40 is an extremely concentrated form of nicotine sulphate, and is now sent out as a substitute for the black-leaf. It is supposed to be as efficient and has the added benefit of being cheaper. Use in the proportion of one part to eight hundred parts of water or lime-sulphur.

The term fungicide is applied to those substances which will prevent the growth of fungi on plants. The fungi are a group of plants of low order, many of which live as parasites on the higher or flowering plants.

A parasitic fungus is a plant as truly as is the apple tree, the prune tree or any other plant upon which it may be growing. It differs from the common plants essentially in being much more simple in structure and in being devoid of chlorophyll—the green coloring matter of plants. Its reproductive bodies,

which are called spores, are more simple and very much smaller than the smallest seeds of our common plants, and are produced in almost inconceivably great numbers. The vegetative portion of the fungus, the part which, in a sense, corresponds to the roots, stems and leaves of ordinary plants, the parts which absorb the food materials and eventually produce the spores, consist of a mass of more or less branched, white or colorless, and very minute threads, and is called the mycelium.

Being so small and light the spores are readily carried long distances by the wind, washed about by the rains, and are also carried by birds and insects, and probably by other agencies. These agencies are thus largely responsible for the spread of fungous diseases from leaf to leaf, plant to plant, orchard to orchard. Over greater distances the spores may be carried on shipments of infected nursery stock, fresh fruits, vegetables, seeds, etc.

Should a spore fall upon suitable soil, such as the surface of leaf or fruit, and the conditions of heat and moisture be

favorable, it will germinate—push out a delicate, slender germ-tube. In the case of most parasitic fungi this germ-tube soon penetrates the epidermis of the leaf or fruit and the mycelium develops in the underlying tissues entirely beyond the reach of fungicides.

The philosophy of spraying for fungous diseases in general is based on the fact that they cannot be cured, but can be prevented. This germ-tube must be destroyed before it penetrates the epidermis, and to do this the surface of the host must be thoroughly protected by the fungicide during the entire time the spores are germinating.

(a) Bordeaux Mixture—Bordeaux mixture has long been the principal spray used as a preventive of fungous diseases of plants, and while other sprays, notably the lime-sulphur mixtures, give promise of largely supplanting it for orchard purposes it still remains one of the most important orchard fungicides. Bordeaux for winter use may be made as follows: Copper sulphate, six pounds; quick lime, six pounds; water fifty gallons. This is



known as the 6-6-50 formula. It should be used only upon dormant trees.

When the trees are in leaf the following 4-4-50 formula is used: Copper sulphate, four pounds; quick lime, four pounds; water, fifty gallons.

A weaker formula, known as the 3-6-50 formula, is sometimes used on plants of tender foliage. In Oregon the formula has been successfully used on the peach foliage for prevention of fruit spot, but it is without doubt safer to use the self-boiled lime-sulphur: Copper sulphate, three pounds; quick lime, six pounds; water, fifty gallons. It is of great importance that bordeaux be properly made. The mixture must be fresh each time it is used. The ingredients may, however, be stored in stock solution for an indefinite period. Always use wooden or earthen vessels in preparing bordeaux or the solution of bluestone.

When large quantities of bordeaux mixture are required it is most convenient to have stock solutions made up containing one pound per gallon of the respective ingredients. Take a fifty-gallon barrel of water and suspend near the top a coarse sack containing fifty pounds of crystallized or granulated commercial copper sulphate. It will dissolve in a few hours. It is convenient to arrange

this the night before the spraying is to be done. In another barrel place fifty pounds of lime freshly slaked. For this purpose choose clean stone lime of the best quality. Slaking should be done carefully. Water should be added a little at a time so that slaking will take place rapidly. The process should be watched carefully and the mixture stirred constantly while the slaking is going on, adding water as needed to prevent burning, as lime should never be allowed to become dry while slaking or it will burn, nor should it become entirely submerged

with water. The mixing can be conveniently done with a hoe. When thoroughly slaked make up to fifty gallons with water.

If small quantities only of stock solution are needed any quantity can be made in the above mentioned proportions. If the spray is to be applied to peach trees in foliage use the 3-6-50 formula. It is always best to test the mixture before applying it with potassium ferrocyanide.

These stock solutions can be kept for an indefinite time if water is added to replace that lost by evaporation. They should be kept covered to prevent dilution by rains. Made up in this way, each gallon of stock solution represents one pound of ingredients. Each should be stirred very thoroughly before any is taken out.

In making up the mixture from these stock solutions both the copper sulphate and the lime should be diluted before being mixed. Have two dilution barrels or tanks. If the 6-6-50 formula be used, and the spray tank holds one hundred gallons, take twelve gallons of copper sulphate stock solution and dilute to make fifty gallons in one barrel, and take twelve gallons of the lime paste and dilute in the same manner in the other barrel. The lime paste should be run through a fine strainer.

For convenience it is well to have a platform built high enough to permit the liquids to flow from the dilution tanks into the spray tank. Allow the two diluted solutions to run together through a twenty-mesh copper wire strainer into the spray tank, mix well and apply at once. (It is always best to test the



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TWO ACRES OF THOROUGHBREDS GROWN BY J. H. SHIRK OF TULARE, CALIFORNIA



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FIELD OF KELLOGG THOROUGHRED BERRIES GROWN BY C. W. HOGUE AT FRANKLINVILLE  
NEW YORK



mixture before applying with potassium ferrocyanide.)

Buy ten cents' worth of potassium ferrocyanide at the druggist's and dissolve in the least possible quantity of water. Label the bottle poison. Take out a cupful of the well stirred mixture and allow a drop or two of the potassium ferrocyanide to drop into it. If the drop turns yellow or brown on striking the mixture it will be necessary to add more lime. Add lime until no discoloration is seen when tested in this way. If this precaution is not taken the spray may cause injury to the foliage.

Use a good pump that gives a strong, constant pressure; have good nozzles that give a fine, mist-like spray and cover the tree thoroughly. Always rinse out the spray tank, hose and rod with clean water after using. Use only brass rods and connections, as bordeaux mixture will gradually attack iron.

Unfortunately even the most carefully prepared bordeaux will sometimes cause serious russetting of the fruit of apple. This russetting seems to be the most serious when rainy or at least humid weather prevails at the time of the first spraying after the blossoms fall, and as

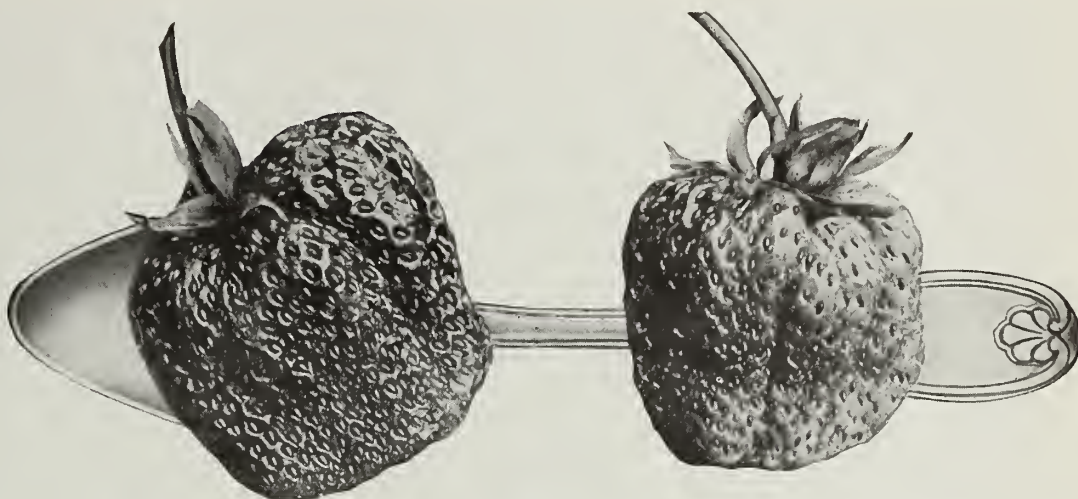
such conditions usually do thus prevail, at least in the Willamette Valley. "spray injury" following the use of bordeaux often becomes almost as serious as the fungus injury it was expected to prevent.

(b) Self-Boiled Lime-Sulphur—This mixture, introduced and perfected by Scott, of the Department of Agriculture, is especially desirable for use on peach foliage. The experience in most sections of the country has been that bordeaux mixture and most other fungicides are unsafe to use on peach and other tender

foliage. This fact has led to the perfection of the self-boiled lime-sulphur. This mixture, prepared and recommended for use on the peach foliage, is in effect a mechanical mixture of lime and sulphur, with only a very small percentage of sulphides in solution. In Oregon this spray is especially recommended for use against brown rot and fruit spot of peach. The formula recommended is as follows: Lime, eight pounds; sulphur, eight pounds; water, fifty gallons. The preparation of the mixture as described by Scott in Bulletin No. 174 of the Bureau of Plant Industry is as follows:

"The mixture used in our experiments during the past season was composed of eight pounds of fresh stone lime and eight pounds of sulphur (either flowers or flour may be used) to fifty gallons of water. This mixture can best be prepared in rather large quantities, say enough for two hundred gallons at a time, making the formula thirty-two pounds of lime and thirty-two pounds of sulphur, to be cooked with a small quantity of water (from eight to ten gallons) and then diluted to make two hundred gallons.

"The lime should be placed in a barrel and enough water poured on to almost cover it. As soon as the lime begins to slake the sulphur should be added, after first running it through a sieve to break up the lumps. The mixture will require constant stirring, and more water should be added as needed to form a thick paste at first and then gradually a thin paste. The lime will supply enough heat to boil the mixture several minutes. As soon as it is well slaked water should be added to cool the mixture and prevent further cooking. It is then ready to be strained into



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#### A GLEN MARY AND WILLIAM BELT BERRY



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AN OBJECT LESSON TO THE OWNERS OF SMALL PIECES OF LAND SHOWN IN ABOVE THE PICTURE WHICH IS THE HOME GARDEN OF F. E. BEATTY, PRESIDENT AND MANAGER OF THE R. M. KELLOGG COMPANY, THREE RIVERS, MICHIGAN

This piece of ground by actual measurement is three by seventeen rods and contains a complete assortment of vegetables, several kinds of bush fruit, grapes, plums, cherries and young apple trees, besides many beautiful varieties of roses grown as a border. It adds value and affords untold pleasures of fresh fruit and vegetable for the home table.



the spray tank, diluted and applied to the trees.

"The stage at which cold water should be poured in to stop the cooking varies with different limes. Some limes are so sluggish in slaking that it is difficult to obtain enough heat from them to cook the mixture, while other limes become intensely hot on slaking and care must be taken not to allow the boiling to proceed too far. If the mixture is allowed to remain hot fifteen or twenty minutes after the slaking is completed the sulphur gradually goes into solution, combining with the lime to form sulphids, which are injurious to peach foliage. It is therefore very important, especially with hot lime, to cool the mixture quickly by adding a few bucketfuls of water as soon as the lumps of lime have slaked down. The intense heat, violent boiling and constant stirring result in the production of a uniform mixture of finely divided sulphur and lime, with only a very small percentage of the sulphur in solution. The mixture should be strained to take out the coarse particles of lime, but the sulphur should be carefully worked through the strainer.

"In applying the self-boiled lime-sulphur mixture the spraying outfit should be equipped with a good agitator. The mixture settles to the bottom of the tank, and unless kept thoroughly agitated cannot be evenly applied."

Since commercial lime-sulphur has caused some burning of fruit and foliage of the apple in some sections of the Northwest we would suggest that the self-boiled lime-sulphur be tried for the third scab spray. Either the 8-8-50 or

10-10-50 formula may be used. While not as good as the commercial lime-sulphur against apple scab Scott finds that it will control mild cases of scab, and in his experiments was entirely harmless to foliage and fruit.

Arsenate of lead for codling moth may be safely used with the self-boiled mixture in the same proportions as recommended when mixed with bordeaux or commercial lime-sulphur.

It is often desirable and practicable to use sprays which combine both fungicidal and insecticidal qualities. The time, expense and annoyance of one or more sprayings may frequently be eliminated by such combinations. Thus bor-

deaux mixture and paris green, or arsenate of lead, has long been used as a combined spray for apple scab and codling moth, and the expense of controlling these two important apple pests has thereby been materially reduced. This spray, however, combines only the fungicidal value of bordeaux and the food poison value of the arsenical. It is of little or no value as a contact insecticide; in other words, it is of no value against scale insects, plant lice and other sucking insects.

During the past four years we have conclusively demonstrated that the lime-sulphur spray, which has long been known as the most satisfactory winter spray for San Jose scale, has fungicidal qualities nearly or quite equal to those of bordeaux. We have also conclusively demonstrated that it may be used in combination with arsenate of lead without detracting from the value of either, and that when so used it is at once an efficient contact insecticide, food poison spray and fungicide.

It also has the advantage that when properly diluted it may be used either as a winter or summer spray.

As a winter spray one application of the lime-sulphur spray each year will do more for the neglected orchard than can be done in any other way by the same expenditure of cash and energy. It not only destroys San Jose scale, but it also destroys the branch form of woolly aphis, the eggs of the green aphid, the pear leaf blister mite, the hibernating larvae of the bud



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KELLOGG'S THOROUGHbred BERRIES IN PEACH ORCHARD OF MRS. T. F. TURNER, UTICA, ILLINOIS



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FIELD OF KELLOGG'S THOROUGHbred PEDIGREE PLANTS GROWN BY CARL J. PIPER  
KENSINGTON, MINNESOTA



moth, together with most other insects which may happen to be wintering upon the trees. It is also a good fungicide. If applied in the fall it is nearly or quite equal to bordeaux as a preventive of apple tree anthracnose, and applied to peach trees just before the buds open in the spring it is a preventive of the peach leaf curl.

As a summer spray, the results of the past four seasons' work at the Oregon Experiment Station prove conclusively that when properly diluted it can be safely used upon the apple, pear, plum and prune, potato, celery and other hardy plants, and that it gives much better results in controlling apple scab than does bordeaux, which has been the standard spray for this disease, and, further, that it is much less likely to cause the disastrous "spray injury" to fruit and foliage, which is so common, and often serious, when bordeaux is used.

**Preparation of Lime-Sulphur**—The "stock solution" method of preparing lime-sulphur is now most generally used in this state. A number of brands of commercial solutions which have only to be diluted with water to be ready for use are now offered for sale, and careful experiments extending over several seasons have demonstrated that these sprays are fully equal to the old home-made lime-sulphur spray.

The chief fault to be found with these commercial preparations is that they cost too much. The retail price is \$7 to \$10 per barrel of fifty gallons. The lime and sulphur necessary to prepare fifty gallons of stock solution, which is equally as efficient, costs at present retail prices approximately \$3. It may be prepared as follows: Sulphur (best fine ground), one sack, one hundred and ten pounds; lime (best grade, unslaked), sixty pounds; water sufficient to make sixty gallons. Slake the lime, mix the sulphur into a thin paste with a little water, add it to the lime, add sufficient water to make all told sixty gallons; bring it to a boil and boil vigorously for thirty to forty-five minutes, stirring constantly. The sediment is then allowed to settle, after which the clear, amber-colored liquid is drawn off and may be stored in tanks for future use.

Every grower who expects to prepare his own spray by the stock solution method should provide himself with a Beaume's acid scale hydrometer. Such an instrument, which should not cost over one dollar, furnishes a very simple and convenient method of testing the strength of the solution. Having thus determined the strength of any commercial or home-made stock solution it may be diluted for winter or summer use according to the following table, i. e.: If stock solution tests 29 degrees for



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STRAWBERRY FIELD OF GLEN MARY, WILLIAM BELT AND DORNAN BERRIES GROWN BY G. A. FRIEND, ZOAR, OHIO

winter spray use one gallon to nine and a half gallons of water; for summer spray use one gallon to twenty-nine gallons of water. If stock solution tests 31 degrees for winter spray use one gallon to eleven gallons of water, or for summer spray one gallon to thirty-one gallons of water.

Stock Solution	Winter Dilution	Summer Dilution
32° Beaume scale.....	1—12	1—32
31° Beaume scale.....	1—11	1—31
30° Beaume scale.....	1—10	1—30
29° Beaume scale.....	1—9½	1—29
28° Beaume scale.....	1—9	1—28
27° Beaume scale.....	1—8½	1—27
26° Beaume scale.....	1—8	1—26
25° Beaume scale.....	1—7½	1—25
24° Beaume scale.....	1—7	1—24
23° Beaume scale.....	1—6½	1—23
22° Beaume scale.....	1—6	1—22

General directions as to how many times to spray and when the applications should be made are at best unsatisfactory. The answer to both questions depends not only upon the variety of fruit to be sprayed, but also upon the conditions prevailing in the orchard to be sprayed, and the relative importance of the orchard crops to other crops. The orchardist can afford to do more spraying than can the farmer, but usually obtains satisfactory results with fewer applications—first, because he is ordinarily better equipped for the work and has a better knowledge of why he sprays, and, second, because his orchard is usually less seriously infested owing to the better care it has received.

An almost universal practice in this state—and a good one—is to spray the orchard, whatever the kind of fruit, with lime-sulphur at some time when the trees are dormant. While this application is made primarily for San Jose scale we believe there is no other which has such a generally beneficial result. It is the annual "house-cleaning" of the orchards.

The best time for this winter spraying is immediately after the leaves drop in fall—even before they are all off—or just before the buds open in spring. Personally we would prefer the latter were the orchard seriously infested with San Jose scale, the former were it badly infested with anthracnose.

It should be noted, however, that since the introduction of the use of lime-sulphur as a spring and early fall spray for apple scab and apple tree anthracnose that there is much less need for winter applications. In fact whenever the spring and fall application of lime-sulphur are made, all winter spraying may be omitted, except in the case of orchards which have been badly neglected.

In the following pages we have briefly outlined the applications which would be advisable in a theoretical orchard which is supposed to be infested with all of the important pests which are known to occur in the state. In practice it will be rare, indeed, that any orchard will need all the sprayings indicated, but about all that we can do is to outline a theoretical number of sprayings and to reiterate the suggestion which was made at the beginning, that "it is of prime importance that every fruit grower should know what diseases and insects are prevalent in his district and be able to recognize them."

It is advisable to spray a young apple orchard twice each year for the purpose of preventing any insect pests or diseases from becoming established. First, spray with lime-sulphur, summer strength, at the time when bearing trees are just coming into bloom. (Corresponds to the first scab spray for bearing trees.) If aphids are troublesome, add black leaf or black leaf 40, according to formula given above. Second, spray shortly after the fall rains begin, or about the first of

Continued on page 48



# NORTHWESTERN FRUIT EXCHANGE, PORTLAND, OREGON

A BRIEF PROSPECTUS WITH PHOTOS OF ITS ACTIVE OFFICERS, BY C. A. MALBOEUF

THE fruit growers of Oregon, Washington and Idaho saw the sunrise of relief in the solution of the marketing problem when the Northwestern Fruit Exchange was organized July 29, 1910. For the first time in the history of Northwest fruit, an effective and most economical means was offered to the grower to broaden the markets for his product, insure its direct movement to the consuming trade and justify returns upon the basis of actual market values, as regulated by supply and demand. These features

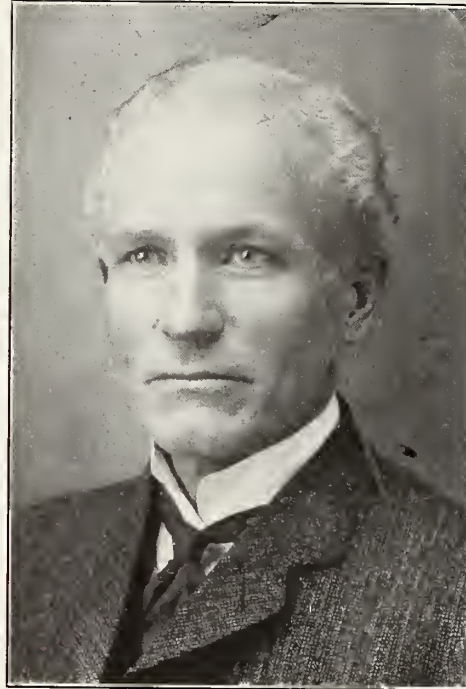
could only be brought about by co-operation of districts through one body, the latter having a thoroughly equipped, powerful and scientific selling machinery to act for the whole. The Northwestern Fruit Exchange, being directly composed of local associations, with its stock, policy and management under the absolute control of the fruit growers themselves, was a fulfillment of the long cherished hope of the grower. Broad-minded, far-seeing fruit growers headed the Exchange. They had large interests of

their own to protect and upbuild, but they had also the welfare of the entire Northwest at heart, and this was the basic principle of the organization.

The advent of the Exchange in the field at the "eleventh hour" in 1910, although a severe handicap, does not appear to have lessened the effectiveness of its work in any way. It marketed seven hundred cars of fruit, representing practically every section of the three states mentioned, with remarkable success. Ninety per cent of this volume consisted of f.o.b.



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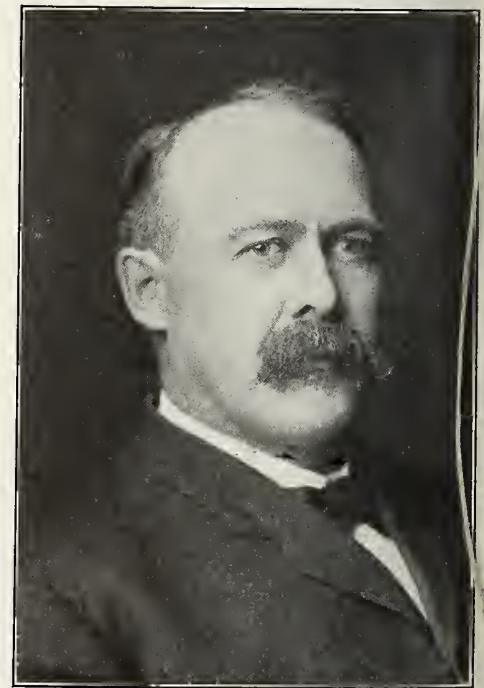
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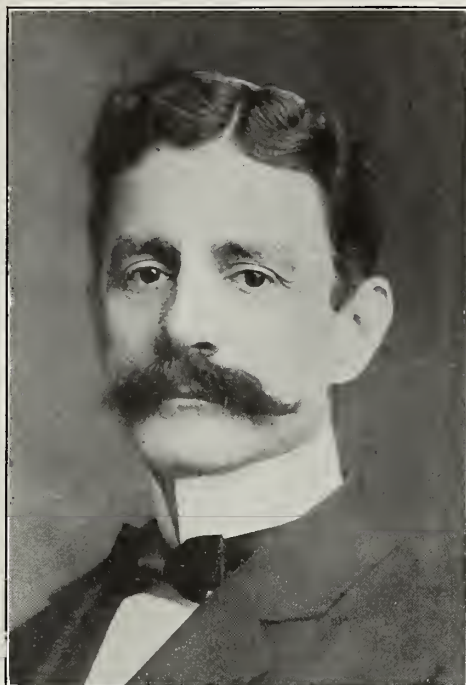


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sales. This in itself was a record, but its seven hundred cars went to 125 different markets of the United States, Canada and Europe, a number of which were heretofore unacquainted with the products of this section. Nowhere in the annals of Northwest fruit do records show as large a number of markets used in any single previous season. As to prices received, the Exchange secured for its growers a higher basis f.o.b. shipping point, district for district, than was returned by any other means of distribution. Its average net results stand pre-eminent in comparison with those of any other marketing agency.

The prestige and confidence already gained by the Exchange is illustrated by its prospects for 1911. The following associations have signed membership contracts with it for the ensuing season: (Buhl Fruit Growers' Association, Buhl, Idaho; Cashmere Fruit

Growers' Union, Cashmere, Washington; Cove Fruit Association, Cove, Oregon; Clearwater River Fruit Growers' Union, Orofino, Idaho; Dalles Fruit Growers' Association, The Dalles, Oregon; Dryden Fruit Growers' Union, Dryden, Washington; Dufur Valley Fruit Growers' Union, Dufur, Oregon; Emmett Fruit Growers' Association, Emmett, Idaho; Eugene Fruit Growers' Association, Eugene, Oregon; Farmers' Union Exchange, Union, Oregon; Imbler Fruitmen's Association, Imbler, Oregon; La Grande Fruit Association, La Grande, Oregon; New Plymouth Fruit Growers' Union, Ltd., New Plymouth, Idaho; Parma-Roswell Fruit Growers' Association, Parma, Idaho; Payette Fruit Packing Co., Payette, Idaho; Rogue River Fruit and Produce Association, Medford, Oregon; Salem Fruit Union, Salem, Oregon; Spokane-Highland Fruit Growers' Union, Kiesling, Washing-

ton; Stevens County Fruit Growers' Union, Meyers Falls, Washington; Umpqua Valley Fruit Union, Roseburg, Oregon; Weiser River Fruit Association, Weiser, Idaho. This list includes some of the strongest associations in the Northwest, with a total of between 2,000 and 3,000 cars now in sight for the year's shipment. Other unions have applied for membership into the parent body, and with the formation of new associations, through the efforts of the Exchange, its work promises to be one of the leading factors in marketing the 1911 crop.

Owing to its enlarged membership, which naturally represents a greatly increased volume of business, the Exchange has found it necessary to move into larger quarters, and is now located on the fourth floor of the Spalding Building, Portland.





THE TWIN FALLS, IDAHO, ONE HUNDRED EIGHTY FEET HIGH



IRRIGATION SYSTEM, TWIN FALLS, IDAHO

Continued from page 45

October, using either bordeaux mixture 4-4-50, or lime-sulphur, summer strength.

Treatment for bearing orchard: First, spray with lime-sulphur, diluted to summer strength, just as the blossom buds begin to separate in the cluster and show color, or slightly before. This is the first spray for apple scab. In case bud moth or other leaf-eating insects are present, add arsenate of lead in the proportion of two pounds to each fifty gallons of spray. If aphids are troublesome, add black leaf or black leaf 40 as above. Second, spray with lime-sulphur, summer strength, to which two pounds of arsenate of lead has been added to each fifty gallons, just after the petals have fallen. This is the second scab and the first codling moth spray. Third, in orchards that are badly infested with apple scab, spray ten days or two weeks after the second spraying with lime-sulphur, summer strength, or with self-boiled lime-sulphur (8-8-50). This is distinctly a scab spray, and in

regions where scab is not prevalent may be omitted. Where codling moth or leaf-eating insects are present, two pounds of arsenate of lead should be added to each fifty gallons of spray. In those sections of the state where scab is not present and it is necessary to spray for leaf-eating insects, arsenate of lead may be diluted with water in the proportion of two pounds to fifty gallons. Fourth, the second spray for codling moth should be applied at the time the moths are depositing eggs for the first generation, or just as the very earliest worms are beginning to enter the fruit. In the greater portion of the Willamette Valley this will be usually between June 25 and July 1, although the dates may vary somewhat with the season. This date is also approximately correct for most portions of the Hood River Valley, but in Southern Oregon and the warmer parts of the Grande Ronde Valley this application should be made somewhat earlier. Use

two pounds of arsenate of lead to fifty gallons of water. Fifth, an application of arsenate of lead should be applied as a preventive of injury by codling moth about four or five weeks after the fourth spraying. In the Willamette Valley this will be about August 1. Sixth, soon after the fall rains begin, or about October 1, it is advisable to spray with summer strength lime-sulphur as a preventive of apple tree anthracnose. If bud moth has been prevalent, add arsenate of lead in the proportion of two pounds to fifty gallons of spray. Seventh, as soon as possible after the fruit is harvested, spray with bordeaux mixture, 6-6-50, or lime-sulphur, winter strength, as a preventive of anthracnose. It is also possible that this and the preceding spray will have a beneficial effect in reducing the spread of apple scab on the foliage and fruit, which frequently is a serious trouble in the fall in some sections of the Northwest. The first, second and third

sprays for the pear correspond to those recommended for the apple, where the pear scab is prevalent. If only codling moth is present, then spray as recommended under the second, fourth and fifth sprays for the apple. For the pear no fall spraying is necessary, except where the bud moth is prevalent. In that case use arsenate of lead, two pounds to fifty gallons of water, from September 15 to October 1.

In treating the peach, first spray with lime-sulphur, winter strength, just as the buds are swelling in the spring, but before the terminal buds show any green color. This application, if made in a thorough manner, will prevent peach leaf curl and destroy San Jose scale. This is the most important single spray for the peach. Second, if the peach spot has been serious, spray in spring after the fruit is set with self-boiled lime-sulphur, 8-8-50. (The time for this spray is about May 10 for



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 KELLOGG'S THOROUGHbred BERRIES ON THE RANCH OF D. S. SPENCER, GENERAL PASSENGER  
 AGENT OF THE OREGON SHORT LINE RAILWAY, AT TWIN FALLS, IDAHO

Money made from the land while the trees are growing up





RETINOSPORA

ture, 3-4-50, lime-sulphur, 1-40 (basis of 30 degrees Beaume stock solution), or self-boiled lime-sulphur, 10-10-50, about a month after blossoming. Second, repeat as soon as the fruit is picked. Third, repeat about three weeks to one month after second spraying. If brown rot is

present in a serious enough form to warrant spraying, apply either of the above mentioned sprays: First, one week after petals fall; second, repeat three weeks later. Whenever cherry slugs become troublesome, spray with arsenate of lead, two pounds to fifty gallons.

## SHANENDOAH VALLEY FRUIT GROWERS' MEETING

Stanton Dispatch and News, Stanton, Virginia, March 31, 1911

ONE hundred and seventy thousand dollars' worth of business during its first business year, and that with a working fund of only \$150 to start, was the remarkable showing made by the Shenandoah Valley Fruit Growers' Association, according to reports presented at a meeting of stockholders held here yesterday in Assembly Hall. This was probably the most important meeting ever held by the organization, and was largely attended.

Besides transacting much other business, the association decided to increase its capital from \$500 to \$10,000 minimum, and from \$25,000 to \$50,000 maximum. To allow the name of the association being changed from what it is at the present time to the Virginia Fruit Growers, incorporated, it was decided to apply to the state corporation commission for an amendment to the present charter.

Officers for the ensuing year are: President, M. F. Gilkeson, Staunton; vice-president, Wm. McAllister, Covington; secretary-treasurer, J. L. Phillips, Staunton; general manager, Clarence W. Moomaw; directors, those named above, with J. O. Greaver of Lexington, J. L. Moomaw of Clover Dale, and B. E. Watson of Waynesboro. All of the old officers were elected with the exception of C. G. Crawford of Kernston, who retired as vice-president and director, and was succeeded by Mr. McAllister.

In presenting his report the president said that the work of the organization was being hampered by the action of some of the members who sold their crops independently. He then stated that it is generally conceded that the association by its work has succeeded in bettering prices, not only to the members, but to every fruit grower in territory covered by the organization—the increase obtained for the latter certainly averaging not less than fifty cents a barrel.

General satisfaction was expressed at the fine showing made during the first business year, and the body moved that all reports of the officers, together with the addresses made by members, be printed for distribution to members who had been unable to attend the meeting as well as to growers generally.

Especial gratification was shown in the fact that during the season past the association imported the first expert box packers ever brought to the state, thereby inaugurating a new era in the fruit industry in Virginia. Fancy apples, it is claimed, are selling much higher each year when packed in boxes and not in barrels. During the year the association marked all its shipments with its own registered "F. F. V. Brand," and

the name of the grower was stamped on each package. This has resulted, it was pointed out, in the individual growers receiving communications complimentary to their products from as far off as the British Isles.

For a thorough understanding of the marvelous achievements of the Shenandoah Valley Association during its first year several facts must be recalled. While the organization was formed three years ago, last year was the first year it had really set out to do business. Another thing which makes the showing so remarkable is the fact that when Clarence W. Moomaw assumed the general management last July the season was well advanced and there was little or no time to make preparations which ordinarily would have seemed essential to success. What makes the year's showing seem still more remarkable is the fact that when Mr. Moomaw took hold of the management the treasury fund contained only \$150, and with only this small sum available he was forced to plan for the season's business. Mr. Moomaw, by his successful conduct of the association's affairs last season, has won the highest esteem of officers and members, and under his capable direction even greater things seem promised this year.



THE MARGARET SNELL CLUB, composed of students of the domestic science and art department at Oregon Agricultural College, gave a farewell reception Wednesday, May 24, in honor of Dean Juliett Greer, whose resignation brings to a close three years of efficient service in the building up of an excellent course of study for future home-makers and teachers of home science and arts. She will go East at the end of the college year, in June.



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HOME AND PARTIAL VIEW OF STRAWBERRY  
FIELD OF JULIUS E. WALBRIDGE  
KIRKWOOD, MISSOURI

Southern Oregon, correspondingly later for other sections.) Third, apply self-boiled lime-sulphur, 8-8-50, about three weeks after the second spraying. If the powdery mildew of the peach appears, frequent applications of self-boiled lime-sulphur should be tried as a remedy, beginning as soon as petals fall, spraying at intervals of ten days. If the disease becomes firmly established, cut back severely and spray as suggested. Fourth, where California peach blight is prevalent, spray with bordeaux mixture or lime-sulphur, winter strength, in the fall about November 1. It is possible that ordinary cases of fruit spot will be kept under control by this fall application, rendering the second and third applications unnecessary except in cleaning up an orchard in which the trouble has become firmly established. It is probable that the second and third sprays recommended above would also answer for holding brown rot in check. In case the brown rot is serious, another application of self-boiled lime-sulphur is recommended about one month before fruit ripens. Only the first and fourth sprays mentioned will be necessary under ordinary conditions in Oregon, since the brown rot is not commonly very serious, and the spring sprayings for fruit spot are considered necessary only in cleaning up an orchard in which this disease has become firmly established.

Ordinarily one spraying with lime-sulphur, applied to prune and plum trees during the dormant season, is sufficient. Where brown rot is prevalent, however, the following should be given in addition to the dormant spray: First, three or four weeks after petals fall spray with bordeaux mixture or lime-sulphur, summer strength. Second, repeat after three weeks. Third, repeat one month before fruit ripens.

The cherry rarely needs more than one application of spray, and this should be applied during the dormant season, preferably when the buds begin to swell. If, however, the shot hole fungus is serious, the following method is recommended: First, spray with either bordeaux mix-



# BETTER FRUIT

HOOD RIVER, OREGON

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A MONTHLY ILLUSTRATED MAGAZINE  
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## CENTRAL SELLING AGENCY.--

It is now four months since this suggestion was made and three months since the first meeting was held at Portland, a second meeting being held in Walla Walla, which adjourned subject to the call of the chairman for a third meeting, for which notices have not yet been sent out.

Yakima Valley is the largest fruit producing section in the Northwest. The Yakima Republic, which is in close touch with the fruit growers of Yakima Valley, comments as follows: "There is not, and there never was, any reason to believe that such an ambition would succeed under present conditions, and if Wenatchee and other districts had all taken hold of it it would have petered out in a short time or would have fallen into the hands of private speculators. Why talk about organizing the fruit men of three states when we have not organized any district, when we have not formed a working association in any single valley or neighborhood, when the apple growers in no section or territory have come forward and signified their willingness to organize, or even expressed their belief in the principals of organization? To go ahead with such a plan as has been outlined is like building a house without a foundation. The Yakima Republic will be frank about this matter and will say that it has no great amount of confidence in the central agency plan. It is not convinced that anything of the

kind is necessary just now, even though it may be practicable. What we of the Yakima country want is an organization of the Yakima fruit growers which will enable those engaged in the industry to present a solid front to the world on all matters that concern it, and will enable our producers to deal as one man or business institution with those who grow apples, those who furnish supplies and those who grow fruit. Organizations such as this have done much for Hood River and Wenatchee farmers. They are wholly practicable in any producing district. They may be made the basis of a central selling agency when they are perfected and are built to command the confidence of the producers and the respect of dealers, and the formation of such an agency will be a very simple matter then."

The editor of "Better Fruit" has had eight years' practical experience in association work, having been a director and manager of the Hood River Fruit Growers' Union for six years, three years the manager of the Hood River Apple Growers' Union and four years a director in the Hood River Apple Growers' Union. During this period the editor has been actively engaged in the practical problem of marketing fruit through an association and has kept in constant touch with the associations of other districts, either by correspondence, personal interviews and visits in the districts, with their directors and managers. When a call was first issued for a central selling agency the editor of "Better Fruit" declined to express an opinion for the reason that he felt much good would come out of meetings held for this purpose through the exchange of ideas and the acquaintanceship that would be formed among fruit growers from the different sections, which would lead to more harmony and a better understanding in the future, and for the further reason that he did not wish to be misunderstood, and by presenting his views at that time they might be construed to be antagonistic, which, in a measure, might interfere with the good that could be reasonably expected to come out of such meetings. The Yakima Republic expresses some views in its article which were apparent when the movement first started to those who had had a great deal of practical experience and had actually been engaged in association work, either as directors or as managers. The basis of such an institution must be built on sound principles. The suggestion presented to the first meeting by the editor was that no plan which called for all the apples of one variety in the different districts being packed according to a standard grade, being sold at the same price and settled for at the same figure to each of the districts, would be acceptable to all of the districts. Although this idea was construed by some as being antagonistic, still it was not meant in this way. The idea is absolutely sound and must prevail if such an institution is ever to be organized. The fruit of each district must be sold on its own merit; the trade will only purchase and pay the market prices on any commodity. An

institution of such magnitude must be built on large units, and it is our opinion that such an institution will find much difficulty in organization if its units are individuals. To some of our intimate friends the idea was expressed that if the very large sections like Southern Oregon, Yakima, Wenatchee and Hood River, where good fruit growers' associations already existed, could be united on a plan which would be harmonious and acceptable to each of the four districts mentioned, that the central selling agency would be well under way toward forming an organization and that a plan which would be acceptable to these districts on account of their being the oldest in the line of organization work, and for the further reasons that their associations contained the largest membership of any of the associations of the Northwest, would naturally be founded on true principles, and consequently would be acceptable to the smaller sections with smaller associations.

At the end of four months the action taken by these four districts is just what was anticipated by the editor of "Better Fruit" and others who have had much practical experience and have given the matter serious thought. Wenatchee voted two to one not to go into the central selling agency. The Yakima Republic, by the article from which we have quoted, has indicated that at present it is not in favor of a central selling agency. We understand that the Southern Oregon District Association has decided to market its apple crop this year through the Northwestern Fruit Exchange. The Hood River Apple Growers' Union, at its annual meeting, did not vote or bring up for discussion the central selling agency plan, but an active discussion took place in reference to plans and methods of improving the present organization, perfecting its selling plans, increasing its capital stock from \$25,000 to \$50,000, and decided to conduct its own business in the future along lines similar to those in the past and to improve each department of its business and increase its field of operation, and to improve each part of the present organization in every way possible. So there you have the views and the conclusions of the four largest fruit sections in Oregon and Washington.

It is rumored that some of the associations in Southern Idaho will conduct their own business on different plans with a view to bettering their methods, while some associations, we have heard, will market their fruits through the Northwestern Fruit Exchange. In the deciduous fruit sections of California there already exist several large incorporated companies for marketing the fruit, which companies are not owned or controlled by the growers. Among such may be mentioned the Earl Fruit Company, The Pioneer Fruit Company, The California Distributors and several others. These companies have acted in harmony with each other during the past few years without putting up personal fights, for which the grower would have to pay. The Stewart Fruit Company is an inde-

Continued on page 53.



# Land Bargains

In the Famous  
White Salmon Country

A partial list of bargains for sale by

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Following are only a small portion of the lands we have on our list:

300—80 acres 9 miles out; good apple land; 60 acres mostly level, 20 acres rolling, 3 acres cleared; 125 fruit trees set out; fine creek running through the place. Price \$6,000; half cash.

301—30 acres 1 mile from town; 20 acres cleared, 15 acres in 3-year-old fruit trees, 1½ acres in strawberries; running water on this place; on the main road; will make one of the finest homes; close to town; will increase in value every year. Price \$18,000; half cash, rest to suit.

302—160 acres 10 miles out; rich soil; 4 acres in trees just beginning to bear; about 100 acres tillable land, rest rolling, with fine fir timber on it. A cheap place at \$5,000; terms given.

303—2½ acres, all in fruit trees, mostly bearing; joining town. Price \$2,500, on easy terms.

304—160 acres at Gilmer; rich red shot soil, small house, small clearing; mostly covered with fine saw timber, which will help pay for clearing; good place to divide into small tracts. This can be had for \$5,000 and can get 160 joining for same price. If wanted, this is a fine proposition.

305—80 acres 9 miles out; about 50 acres can be set to fruit trees, rest is hillside pasture. Land can be bought at \$50 per acre; \$2,700 cash, rest time.

306—160 acres in Snowden country; is all good land, covered with pine and fir timber; small house. Price \$40 per acre.

307—A nice 160 acres at Trout Lake, unimproved; some fine timber on it, also a running creek. Price \$20 per acre; easy terms.

308—Nice level town lots with bearing fruit trees on them; 300 to 400 big lots; nice corner lot in Overlander Addition for \$250, on easy payment plan; also some fine houses for sale at bargains.

309—10 acres 1 mile out, unimproved; is nice level land; has some rock on it, but they can be taken off;

would make a nice place for chickens and fruit combined. Price \$1,500.

311—80 acres irrigated land in Twin Falls country, Idaho, all cleared; been in crops 2 years; to trade for unimproved land in White Salmon Valley.

312—20 acres 8 miles out; rich red shot soil; 4 acres in Spitzenberg and Delicious apple trees 2 years old; no rocks and no waste land; a fine tract, sloping gently to the east; about 10 acres slashed and burned; some timber; in the great development section. Cheap at \$3,500.

314—5 acres in a high state of cultivation, 2 miles from town; fine 9-room house; the land is all set to trees 2 and 3 years old, and strawberries between the trees, which on an acre clears up \$150 to \$200 each year. This is a money-maker from the start and will increase every year. Price \$6,500; half cash, rest 3 years time.

315—40 acres close to Snowden, unimproved; the land is half good tillable and half rough, with fine saw timber on it. Can be had for \$1,000; terms, \$600 cash.

316—9 acres 2 miles from town; 8 acres in cultivation and 6 acres set to trees partly in bearing, also loganberries and raspberries, 4 acres in strawberries; this is very early and first berries ripe in locality; small house and barn. Price \$9,000; half cash.

317—30 acres 8 miles from station, unimproved; 20 acres timber, rest in brush land and easy clearing; two fine springs of water on this place. Price \$100 per acre; terms given; half cash.

318—6½ acres, unimproved, 1½ miles from town; well located, fine fruit land; wood on this place will help clear same; right on main road. Price \$250 per acre; half cash, rest to suit.

319—40 acres near Robertville; all good land, unimproved; a fine piece of land to put in apples; land around this place is rapidly increasing in value. Price \$35 per acre; terms.

320—20 acres 1 mile from town; about 15 acres good land, rest rough; red shot soil; has a west slope; would be a nice chicken ranch. This is a great snap at \$125 per acre; terms, half cash.

322—26 acres, all good land; 10 acres slashed and burned, light clearing; the rest is brush land easy to clear. This is a tract of land we can recommend to be first class. Price \$100 per acre; terms.

323—40 acres 3 miles north of White Salmon, unimproved, with fine timber, willow and hazel brush growing on it; some is rolling, some level. This can be had by paying only \$1,000 down, and rest good terms.

324—20 acres 9 miles out, in the apple belt; fine red shot soil; some good fir timber. A bargain at \$2,000; terms.

325—40 acres in the apple belt, in a high state of cultivation; all set to trees; one of the best 40-acre tracts anywhere in the country; very rich soil; keeps plenty of moisture during summer; about 15 acres in 3-year-old orchard and 25 acres in 1-year-olds. Price \$24,000; good terms given.

326—80 acres 4 miles out, in choice apple belt; all unimproved, but easily cleared; mostly all level. Price \$100 per acre; terms.

327—40 acres 3½ miles out; 35 acres level, 5 acres rolling; good rich soil, well watered by springs; about 15 acres out to young orchard; a good house of 5 rooms, barn 30x40, and out-buildings. Price \$7,000; two-thirds cash.

328—160 acres 7 miles out, in good location; 110 acres tillable land, rest pasture land; red shot soil; very fine apple land; has about 5 acres in 3-year-old fruit trees; fine spring of water; small house. A good buy at \$12,000; terms.

329—120 acres 3 miles out; small house and barn; 2 acres cleared and set to young trees, 10 acres more slashed and burned; the land is rolling, but well located. Price \$50 per acre; terms.

330—145 acres near Underwood; 80 acres level, 40 acres rolling, balance good pasture; 5 acres under cultivation, with 5 good springs on the place; small house and barn; about ¾ mile from school and 2 miles from post office; all good strawberry and fruit land. Price \$125 per acre; one-third cash and balance on good terms, at low interest.

331—70 acres near Husum; 20 acres level and balance just rolling enough for good orchard land. The soil is of a combination of red shot and clay, which is the most desirable for apple culture. There are two good springs on the place, which afford sufficient water to irrigate at least 10 acres; 12 acres in cultivation and 3 acres set to commercial orchard. This place lies directly on the Trout Lake road and is a most desirable place for a home, as well as a money-maker, if properly handled. The improvements are all new and good. Price \$7,500; half cash and balance to suit.

339—70 acres, 10 miles from White Salmon, on the Trout Lake road and White Salmon river; 12 acres in cultivation, 3 acres to apple orchard; two good springs, sufficient to irrigate 10 acres; new 7-room bungalow, cost \$2,000; small barn and other outbuildings; two miles from the town of Husum; all the best of shot and clay soil, and is directly on the line of the proposed railroad. This is a snap at \$7,500; one-half cash and balance on good terms.

340—40 acres, 6 miles north of White Salmon; rich red shot soil, fine location; 11 acres in cultivation and set to commercial orchard 2 years old; balance can all be easily cleared. Price \$6,000; one-half cash, balance on good terms.

We shall be glad to give you any further information you may desire. Being well acquainted with the possibilities and resources of the valley, we are in a position to give our customers the best service possible, and gladly make arrangements to show intending settlers the country, if they let us know when they are coming. We respectfully solicit your patronage.

## R. FIELD & CO.

MAIN STREET WHITE SALMON

Reference: White Salmon Valley Bank



# Hood River Commercial Club

HOOD RIVER, OREGON

## TO THE PUBLIC:

The recent reports from the East and Middle West about the terrific heat has given me an intense feeling of pity for the poor people who are suffering, being compelled at the same time to perform their daily routine duties to earn bread and milk for the children. It makes me feel like taking everyone by the neck and pulling him out here where the sun is shining, the air is clear and pure, and a heat prostration is unknown.

Soon the electric storms with their unpleasant results will pass through many a state.

Here, we the people of Hood River, are enjoying and will enjoy ideal climatic conditions, cool nights—the kind that finds you under a blanket every night—an electric storm almost unknown. We are making an honest, good, clean living, exercising ourselves only to the extent of pleasurable duties. We are paid amply for our endeavors. We are living good, clean lives and enjoying every minute of it. We have opportunities for hundreds of people here who can do the same. An apple orchard in Hood River is a permanent avenue of industry and on these orchards we make from twenty per cent to fifty per cent net, depending upon the kind of orchards, what varieties of apples are grown and the care given the orchard—and the percentage is made on a valuation of \$2,000.00 per acre. We do this year in and year out, because Hood River is the ideal apple section where things have been demonstrated—proven. We know what we can do and will do.

The orchard business is not one where you can invest a few dollars and then sit down and have the dollars roll in to you. You can expect and will realize pleasurable work—the kind that gives you an appetite three times a day and produces for you an ample legitimate profit—a profit as large and permanent as you will find in any business.

I cannot tell you all about it here. Will you write to me and let me tell you all about it? I know I can interest you, and it is to your advantage. We have a booklet that shows what Hood River orchards are, also scenic views that show snow-capped mountains—the ones we see every day in our work.

This is yours for the asking and a few cents in postage for the mailing.

Very truly yours,



Secretary Hood River Commercial Club.



Continued from page 50.

pendent incorporated company doing a successful business. Recently the Pacific Fruit Company has been organized in California for the purpose of selling deciduous fruits, but will remain independent, being under the management of W. C. Walker, formerly sales manager of the Pioneer Fruit Company. We understand that the stockholders of the California fruit exchanges are not to any extent fruit growers themselves, in which respect they differ somewhat from the Northwestern Fruit Exchange, which states that its directors are composed of fruit growers in the Northwest.

Mr. W. H. Stewart, of the Stewart Fruit Company, says: "I believe the constant struggle of one fellow trying to beat the other fellow's price gives the best results to the grower, and the dealer also benefits thereby because everybody is trying to please him. The supply and demand is going to regulate the movement and prices, and there can be no such thing as a trust in perishing products. They must be sold, and the more men there are selling them the wider will be the distribution and the better will be the prices." That competition is the life of trade no one can deny. So long as competition is keen and honest, trade is stimulated and it seems just to state that the more honest firms there are engaged in doing a square business and the more associations there are engaged in selling the fruit the more widely the fruit will be distributed, and distribution is what the fruit grower wants at the present time. However, it must be admitted if private incorporated companies combine, and the stockholders are not composed of fruit growers, such an institution might be enabled to increase the dividends of the stockholders at the expense of the fruit growers.

"Why talk about organizing the fruit men of three states when we have not organized any district?" This is about as sensible a statement as probably could be presented in a few words. No district is yet thoroughly organized, and in the districts where there are associations, up to the present writing, no association has yet succeeded in getting all of the growers to become stockholders or shippers through the association. The Hood River Apple Growers' Union probably

has a greater per cent of growers than any other association. About eighty-five per cent of the apple growers in Hood River Valley are members of their local organization.

The editor is a firm believer in evolution, and it seems common sense to assume that the central selling agency cannot be composed of smaller units than an association, and we doubt if a central selling agency can be organized until several associations in different districts have achieved a moderately reasonable degree of success and until their memberships control a reasonably large percentage of the growers as stockholders. In other words, if we are to have a central selling agency composed and controlled by fruit growers each section must first perfect its association, and, second, each district must unite the different associations in the district under a district organization. When this is done, and not until it is done, will we, in our opinion, have a proper foundation on which to build a central selling agency.

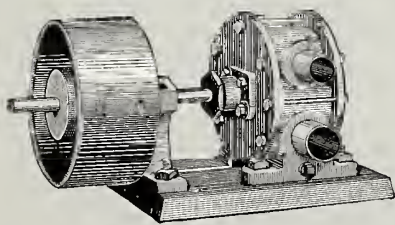
**HOGS AS MONEY MAKERS.**—The Oregon-Washington Railroad & Navigation Company officials are certainly in a position to understand the factors that are important in upbuilding the country, and are doing good work along this line. They have recently published a booklet entitled "The Money Makers; Swine Raising in the Pacific Northwest." This thought presents itself in connection with orcharding. Fruit growers will realize that sooner or later the soil will need additional humus after intense cultivation. Now, the cheapest way to supply this is to seed the orchard to clover, alfalfa or vetch. This booklet contains much information about raising and feeding hogs in general, and we have no doubt but what any fruit grower can find ample time to take care of a moderate sized bunch of hogs, which would bring an additional profit.

**THE AUTOMOBILE INDUSTRY.** This industry is important in connection with the fruit industry as a time-saver for the fruit grower in going to and from town and attending to other business. The popularity of the auto with the fruit grower is evidenced by the

large number that are purchased, not for pleasure, but as time-savers. In large cities the auto trucks are rapidly replacing horses. The automobile is used in hauling fruit to the depot, hauling supplies from town, and in the near future we prophesy a large number of auto trucks will be used by the fruit growers. The average fruit grower on a small place is hardly justified in buying a palace touring car, but what he wants is a practical machine at a moderate price. That the automobile has come to stay, as a matter of business more than pleasure, seems evident in the increased number, there having been 3,723 manufactured in 1899 and 127,289 in 1909. Statistics are not out for 1910, but no doubt such statistics will show a large increase over the previous year.

**BOYS' DEMONSTRATION WORK.** The Department of Agriculture has issued a bulletin on "Boys' Demonstration Work." Boys of today will be men in the future, and to train a boy right is the duty of every parent. That much good can be accomplished for boys in demonstration work has been proven beyond any question. The National Cash Register people were among the first to encourage boys in gardening work by renting a large tract of land for planting, putting a superintendent in charge and apportioning to each boy a small plat on which to raise his crop, all of which was free, and offering prizes for the best results. In some cities this matter has been taken up by the city improvement clubs obtaining permission to use vacant lots, they in turn apportioning the land to different boys. The results have been gratifying in many cases. These vacant lots were turned into vegetable gardens, which were of great assistance to poor families. It seems a great deal better to have these lots made attractive in this way than to permit them to lie idle, covered with rubbish. Demonstration work is being done in the South, where they have formed a number of corn clubs for boys, and it is promising some wonderful results. With the many practical demonstrations that have been made it is evident every parent will be justified in giving this matter consideration.

The pump you have always wanted but could never before obtain



Patented June 2, 1903  
Improvements Pending

Every Pump Guaranteed  
Absolutely

## The Ideal System of Irrigation

Saves power and money; utilizes the power; converts power into results; high heads without staging; deep wells, pits and mines. Mechanical perfection; simple; easily installed; free from wear; faithful and dependable machine. Made in many sizes, 25 gallons per minute to 10,000 gallons per minute. Address

**Ideal Irrigation Rotary Pump Company**

HENRY BUILDING

SEATTLE, WASHINGTON



**B**ETTER FRUIT was original in conception and has been original in execution, and is like no other fruit growers' paper in any respect. We have published a great many special editions during the past five years on important features connected with the orchard industry. "Better Fruit" will add new features from now on.

The July edition will be a surprise number, and one which will undoubtedly be of great benefit to all fruit growers, fruit growers' associations and private shipping firms of the Northwest. Our assistant editor, Mr. C. R. Greisen, will make a special trip to some forty large cities, collecting data and various information regarding marketing problems, which will be of great value. Mr. Greisen made three trips East for "Better Fruit" during the year 1910, but this trip will be the most thorough and complete of any. Not a single horticultural paper, so far as known, has sent a special representative East.

The July edition will contain much information about marketing in different cities, which will be gathered by our assistant editor, and in addition will contain a number of interesting views of the principal markets of the larger cities, and also photographs of many of the principal fruit dealers, all of which will undoubtedly prove very interesting and very valuable to fruit growers.



**T**HE Puyallup Fruit Growers' Association's genial manager, Senator W. H. Paulhamus, is in favor of reciprocity. In the interests of fruit growing, he states that eleven cents per box on peaches, thirty cents on apples, fifty cents on berries is more or less prohibitory. Canada's season is later than ours, and on account of the tariff we are unable to ship for the early Canadian market.



**V**ARIETIES OF FRUIT.—On account of the popularity of the apple and the splendid profits that are being made by apple growers in the Northwest, and, for that matter, in other sections of the United States, the apple is very much in the limelight. From prices realized on other varieties of fruit it would seem that a great many sections and growers are overlooking many good bets. The prices for prunes have been such as to indicate that this will be exceedingly profitable business. Raspberries made better money for the growers last year than they have in the past. Prices for strawberries have been unusually good in all producing sections these last five years.

From the prices obtained for many other varieties of fruit it would seem that the growers would be justified in giving the matter of planting other fruit than apples serious consideration. There are many districts where pears, cherries, prunes, peaches, grapes and apricots can be grown very successfully, of unequaled quality, with large yields. While it must be admitted that this is an age of specialties, and that specialists are generally successful in making extra money, still it

must be conceded that if everyone plants apples necessarily a shortage must exist in the near future on other varieties of fruit, and consequently it will not be surprising, in due course of time, to see high prices prevailing for peaches, pears, berries, grapes, prunes and cherries. There is an old saying, "Don't put all your eggs in one basket," and if a fruit grower has land where different varieties of fruit can be grown he should go in for various kinds of fruit, then should one of them prove a failure, or prices of some one kind be low, he will still come out with a good average net profit.

The opinions of prominent railroad officials are certainly entitled to consideration, because such men are big, broad-minded men who have opportunities for taking a general view of things, which an ordinary individual does not always possess. Therefore, if it seem wise, in their opinion, to encourage a general variety of farm products the matter is worthy of consideration.

In many sections of the Northwest immense crops of alfalfa can be grown, and it is also well known that the stock business of the Northwest has been very

profitable. Where alfalfa can be grown successfully and the climate is well adapted to stock raising, as it is in the Northwest, it would seem that an opportunity for this line of farming has been largely overlooked.

Some districts, for certain reasons, are especially adapted for producing some one thing as a specialty, but it does not seem wise for all districts to grow the same specialty. On the other hand, where a district is adapted to several specialties the matter is undoubtedly worth considering.

## Cupid Flour

Has same standing in the Flour trade that Hood River Apples have in the Fruit trade.

MADE BY

**HOOD RIVER  
MILLING CO.**

# CREATION



**H**E who is blessed with the power to create is blessed with God's greatest gift to man, and if he uses that power to increase the happiness of his fellow men he becomes a benefactor to the human race.

The world owes homage to the men who have devoted their burning energies to the consummation of one purpose, to the final and most perfect development of an ideal.

## The Steinway Piano

Is an example of the grand result of years of persistent, purposeful striving after the very highest musical ideal. Sons have taken up the task where fathers left off, so that alternate generations of genius, working through the finest piano factory in the world, have evolved the **Steinway**—a piano that has long since been acknowledged the musical masterpiece of the ages.

Priced at \$575, \$625, \$775 and up to \$1,600. Of course you can buy a piano cheaper, but it will be a cheaper piano. Why not get the best?

The tone is the Jewel.  
The case is the Setting.  
The combination is the  
**Steinway—the Perfect Piano.**

**VICTOR TALKING  
MACHINES and  
SHEET MUSIC**

**Sherman & Co.**

**SIXTH AND MORRISON  
PORTLAND, OREGON**

Exclusive Steinway Representatives



**C**HARLES WILMEROTH has just returned from a trip through Europe, having visited England, Ireland, Scotland, Germany and several other countries, both as a pleasure trip and in the interest of the fruit business. One of his principal comments is that boxed apples nearly all arrive in a damaged condition, which would make the heart of the fruit grower sore. From him, and from others, we have learned that apple boxes are put into a sling and loaded into the hold in the steamer at this end, and put into sling and dumped on the wharf at the other end. The consequence is the fruit grower who has handled his apples like eggs, and the railroad carried them carefully to New York, has them subjected to the roughest kind of handling in being loaded on the steamer and from the steamer to the wharf. This is a phase of fruit shipping that should be corrected. Mr. Wilmeroth says that apple boxes should be made strong for export. His suggestion is meeting with approval, and it would seem that from his report on the method of handling that the cover ought to be made as thick as the sides. The editor of "Better Fruit" was the first to call for a reduction in the swell in 1903. Swell anywhere from one and one-half inch to two inches was considered necessary in packing apples, but the editor of "Better Fruit," who was manager of the Hood River Apple Growers' Union, immediately began to make investigation, and through observation and by correspondence became convinced that one-inch swell on top and bottom was all that was necessary to take care of any shrinkage, and consequently the Hood River Apple Growers' Union followed this system of endeavoring to pack every box of apples with a swell of not more than one inch, top and bottom. It would seem that from what Mr. Wilmeroth says the swell has been too great, and much bruising the result, and it looks now as if it would be necessary for all districts to allow one-inch swell, and it might be advisable to decrease the Hood River standard, from one inch on top and bottom to something less. Mr. Wilmeroth is a man of varied experience in the fruit business, having been a member of a Chicago firm several years, a resident of Wenatchee for some time and located recently in Southern Oregon, and during the year 1910 he was manager of the Southern Oregon Fruit Growers' Association, consequently his conclusions are worthy of careful consideration.

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**N**URSEYMEN'S CONVENTION. The nurserymen's conventions are of great importance to the fruit industry. Every nurseryman should attend the two conventions that are to be held this year. The National Nurserymen meet in St. Louis June 14, 15 and 16. Excursion rates can be secured on June 10 and on various other dates, which can be secured from the Oregon-Washington Railroad and Navigation Company. Every nurseryman and every fruit grower will receive in benefit several times the cost of this

trip. We presume arrangements can be made also to return via San Jose, California, to attend the Pacific Coast Nurserymen's Association, which is to be held in that city June 21, 22 and 23. However, those who cannot make both trips can make arrangements for the Pacific Coast Nurserymen's Association by writing to C. A. Tonneson, secretary, at Tacoma, Washington. We understand the rate to San Jose, California, will be \$26.40. "Better Fruit" intends to be represented at both of these meetings if possible, but the work of getting out an edition of "Better Fruit" has become so great, requiring more time every month, that sometimes we are unable to attend all the conventions we would like to. We intend to be represented at the San Jose meeting at least, if it is possible.

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**T**HE Pacific Fruit Express is preparing a new system of icing for the coming year. While we have not seen the apparatus, we understand there will be a moving platform constructed along the track which will carry a load of ice, and by moving alongside the railroad track the entire train can be re-iced in a very few minutes. This shows the right disposition on the part of this company to assist the fruit grower, because the quicker the fruit reaches its destination the better it will be on arrival.

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**R**ETURNS and reports of a reliable nature are not yet in from all districts. Possibly some districts will have nearly a normal crop, while others are already known to be very light. At the present writing it seems as if the estimate of sixty per cent for the Northwest in general would be a conservative figure.

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**T**HE apple market has certainly been peculiar this year. Barrel apples commanded very strong prices the early part of the season. At the present time the demand for barrel apples is weakening very rapidly, while the demand for boxed apples is very strong.

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#### THE APPLE TREE STORY

**P**ARAGRAPHS have recently been appearing in newspapers that a young apple tree is to be planted to replace the old apple tree under which Lee surrendered to Grant at Appomattox. This apple-tree legend survives the years and all attacks upon it. It is such a pleasing legend, blending poetry and tragedy, botany and arms, that people persist in believing it. These fruit-tree legends—the Grant apple tree and the George Washington cherry tree—are a great deal harder than the fruit trees themselves, and live to a riper age. The apple-tree story has very little fact to sustain it. Lee did not surrender under an apple tree, but in the parlor, on the right of the entrance of the house of Wilmer McLean, which set back in a big garden on the main street of the village of Appomattox, about one square from the courthouse. General Lee and his mili-

tary secretary, Colonel Charles Marshall, entered the McLean house at 1:30 o'clock in the afternoon of April 9, 1865. General Grant was already there, accompanied by Generals Sheridan, Ord, Ingalls, Rawlins, Seth Williams, John G. Barnard, and Colonels Horace Porter, Orville E. Babcock, Ely S. Parker, Theodore S. Bowers, Frederick T. Dent and Adam Badeau. The articles of surrender were agreed to, written and signed, the conference was concluded at 4 o'clock, and at 4:30 o'clock Grant sent the dispatch to Secretary Stanton announcing the surrender of the Army of Northern Virginia.

An apple tree and an apple orchard figure in the events leading up to the surrender, and it may take some of the bloom off the story to announce that April, 1865, was a backward month, and that at the time of the surrender there was not a leaf or a blossom on any trees around Appomattox Courthouse. The old orchard long ago disappeared, and the village of Appomattox has very nearly disappeared. The courthouse was burned down something over fifteen years ago and a new one was built at Appomattox Station, on the Norfolk and Western Railroad, three miles southwest of the surrender village. Nevertheless the Appomattox apple-tree story blooms perennially.—Washington Star.

### J. F. LITTOOY

CONSULTING HORTICULTURIST

Orchard director, orchard schemes examined, orchard plans submitted, orchard soils and sites selected, nurseries visited and stock selected, values examined for farm loans, purchasing agent for land and orchard investments, acts as power of attorney in selection of Carey Act lands.

MOUNTAIN HOME, IDAHO

## A Safe Investment

If you are interested in securing a home, or site for a home, in a city where you can spend the declining years of your life in peace and happiness, or if you have money to invest in a city of schools, churches, parks and improvements, where the great railroads of the country have centered and an unequalled harbor offers shelter to the shipping of the world, Seattle gives you an opportunity where steadily increasing values will bring the best results.

We have lots and homes in all parts of the city, ranging in price from \$300 up to \$25,000, as well as farms near the city, which we will sell on easy terms or exchange for farms in any part of the United States. Tell us what you want or have to exchange.

HAZEN CHASE, JR. & CO.

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## Oranges Grow in Texas

The Gulf Coast Citrus Fruit Grower and Southern Nurseryman tells you where. A high-class monthly fruit journal, full of citrus news of a dependable character, illustrated from photographs of growing orchards. Subscription price ONE DOLLAR A YEAR. Sample copy mailed for a dime.

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CITRUS FRUIT GROWER—a high-grade dependable fruit journal—gives unbiased opinions on fruit and truck growing in the Gulf Coast country. Illustrated from actual photographs. NO LAND TO SELL. Three months' trial subscription 25 cents.

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## NURSERYMEN'S ASSOCIATION ANNUAL CONVENTION

THE time for the coming together of our membership—June 14, 15 and 16, 1911—is near at hand, and, with echoes of the splendidly successful Denver convention still fresh in our memory, we are called upon to announce the thirty-sixth annual gathering of our association. When we review the record of achievements by this organization, each one of which has secured large benefits to the trade generally, we are surprised that there are so many nurserymen in every state of the Union who are still unidentified with the association. Surely they do not fully appreciate what a membership with us means. It is no small privilege members enjoy in being able to annually touch elbows with their brethren from far and near, and to listen to valuable papers and discussions on topics of vital importance to each. Whilst certain portions of the time are thus occupied the management, fully believing in the old adage that "All work and no play makes Jack a dull boy," caters also to the social and recreative, and a reference to the program prepared by the entertainment committee will furnish an idea of their plans.

"In union there is strength" may be an "old saw," but it is none the less true, and we repeat what we said in last year's circular: "We are satisfied that there are many nurserymen still to be secured as members, and as a result a corresponding increase in interest and in influence to be developed." Nurserymen, we ask that each resolve to give immediate response. You can if you will. And your doing so will greatly facilitate the work of your secretary in the registration of members and in the compilation

and prompt publication of the badge book.

St. Louis, the convention city for 1911, has an altitude of 480 feet above sea level. It is built on rolling ground, rising at some points 200 feet above the



LOGANBERRIES

level of the Mississippi River, and possesses a frontage of nineteen miles on the "Father of Waters." Beyond the third terrace the surface spreads out in a picturesque plateau. The climate is temperate and healthful. The city is noted for the number and beauty of its public parks, which have an aggregate area of 3,200 acres, prominent among which are the Tower Grove Park and the famous Missouri Botanical Gardens. In its public buildings St. Louis has much to be proud of. It boasts of a \$2,000,000 city hall, a \$6,000,000 U. S. government building and a chamber of commerce building of sandstone in the Renaissance style. It has over 400 miles of streets, and its wide avenues and palatial residences are very attractive. The great bridge over the Mississippi is a marvel of engineering skill.

The selection of The Southern Hotel as headquarters was made after much consideration by the committee, including the president of the association, the latter saying of it, "The ideal place for the nurserymen." The management of the hotel say: "The Southern covers an entire city block; is thoroughly fireproof; has about 400 large rooms, every one with an outside exposure, about 150 of them with private bath. Our hotel lobby, the largest of any in the world, in the form of a Maltese cross, has an entrance from each of the four streets by which it is bounded. The Market Street car will bring you from Union Station direct to our doors. We are prepared to make you very liberal terms—the free use of such meeting and committee rooms as you may require,

together with service, and a rate on the European plan of one dollar per day per person where two occupy the same room with one double bed; single rooms from \$1.50 per day up. Our \$1.50 and \$2 rooms to be one dollar additional where bed is furnished for each additional person; room with private bath from \$2.50 per day up, single, and from \$4 per day up for two people. American plan rates from \$3 per day up." The Southern Hotel people promise that they "will not refuse any reservation as long as vacant rooms are at our disposal, and will use every effort to see that your members are satisfactorily cared for." Our advice to all is that they write immediately to Henry C. Lewis, manager, The Southern Hotel, St. Louis, Missouri.

To join the American Association of Nurserymen costs five dollars. Send that amount to the secretary the day you read this notice. We ask your co-operation. You have everything to gain and nothing to lose by joining, while the association as a whole will be materially strengthened thereby.

In answer to the query, "What is the badge book?" we reply, "an unique list of the live nurserymen of the country." Not that all the live members of the trade are enrolled. Your name should be therein, if not there already. Every member is given a number immediately his fee is received by the secretary, and the membership fee entitles you to publication of name and address only. If a member be alive to his privilege he will buy a space in the book for his advertisement, thereby attracting to himself the attention of every other member, for his badge contains his registration number, which he will attach to his coat, and thus introduce himself to all who meet him at the convention. You cannot afford to be off the list of advertisers. Primarily, for your own good, and, next, because this is a grand co-operative concern, and deserves the support of all to enable it to successfully prosecute its work.

For information regarding exhibits application should be made without delay to Mr. J. W. Schuette, 5600 Gra-



EVERGREEN BLACKBERRY



RHODODENDRON FLOWER





QUEEN OF THE MARKET RED RASPBERRY

"Shaw Banquet" for members and a boat ride for all on the beautiful and majestic Mississippi River, with music and refreshments. Badge book will contain the program in detail.

The committee on program has decided to hold half-day sessions only for business, and it is their belief that if members will respond promptly and heartily to this arrangement the sessions can be made intensely interesting and exceedingly profitable. Chairman J. H. Dayton's desire has been to arrange for a program in which every member present will take part, recognizing the fact that free discussion, following a few short papers on practical subjects by practical men, will produce a fund of information that will make the annual report one of exceptional value. Besides the usual introductory numbers, several committees appointed by President Stark have had to deal with very live topics, and their reports will doubtless create much discussion. Then S. J. Hunter, state entomologist of Kansas, will speak on "Nurserymen and Entomologists;" Dr. J. C. Whitten, professor of horticulture in the University of Missouri, will talk

vois Avenue, St. Louis, Missouri, chairman of committee on exhibits. Intending exhibitors should write him now.

No special railroad rates will be authorized for members attending the convention. The guarantee required is prohibitive as far as this association is concerned. We therefore advise each member to consult with the local ticket agent in his locality regarding routes and rates. The sooner the better. A "special party rate" may be obtained in cases where ten or more can gather at some central point, the conditions being that the same route be used both going and returning, all traveling on one and the same ticket.

Mr. Frank Weber, chairman of the entertainment committee, advises us that the program, as outlined up to the present, includes a visit to Missouri Botanical Gardens, automobile ride through the residence sections, the parks and the main business sections of the city; "special car" trip for ladies only to a popular summer garden theater;

on "Spring versus Fall Planting of Fruit Trees." The professor has been conducting experiments along this line for a number of years.

The balance of the time will be taken up with the discussion of such questions as "Ethics of Our Business," "How to Extend Our Markets at Wholesale and Retail," "Standardization of Prices at Retail and Wholesale," "Standardization of Grades," "Mailing Lists—Should They Be Classified?" "Who Are Entitled to Trade Lists?" "How Best Kept Up to Date," "Should Large Buyers Not in

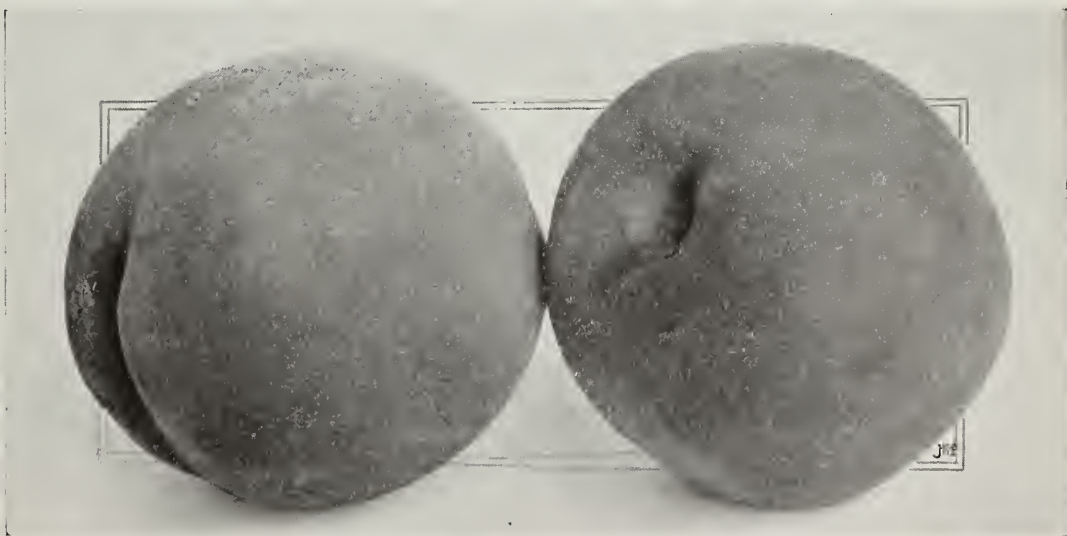
the Trade, Such as Parks, Cemeteries, Public Institutions, etc., Be Given Trade Prices." These questions will be opened by short papers or talks by such practical men as Harlan P. Kelsey, J. M. Pitkin, F. H. Stannard, Abner Hoopes, T. J. Smith, W. H. Maloney, C. J. Maloy, E. W. Kirkpatrick, H. C. Chase, E. S. Welch, Wm. Pitkin, T. B. Meehan and others. Every member should go prepared to participate in the discussions.

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**EATING AN APPLE.**—"Do you know what you are eating?" said the doctor to the girl. "An apple, of course." "You are eating," said the doctor, "albumen, sugar, gum, malic acid, gallic acid, fiber, water and phosphorus." "I hope those things are good. They sound alarming." "Nothing could be better. You ate, I observed, rather too much meat at dinner. The malic acid of apples neutralizes the excess of chalky matter caused by too much meat, and thereby helps to keep you young. Apples are good for your complexion. Their acids drive out the noxious matters which cause skin eruptions. They are good for your brain, which those same noxious matters, if retained, render sluggish. Moreover, the acids of the apple diminish the acidity of the stomach that comes with some forms of indigestion. The phosphorus, of which apples contain a larger percentage than any other fruit or vegetable, renews the essential nervous matter of the brain and spinal column. Oh, the ancients were not wrong when they esteemed the apple the food of the gods—the magic renewer of youth to which the gods resorted when they felt themselves growing old and feeble. I think I'll have an apple," concluded the doctor.—New York Tribune.

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**CONSTRUCTION** work on the irrigation system of the Willamette Valley Irrigated Land Company at West Stayton, Oregon, is progressing rapidly, the weather having been unusually favorable for outdoor work. From seventy-five to eighty men and thirty to thirty-five teams have been at work daily, and it is expected that water will be turned into the canal this month.



ELBERTA PEACHES



## THE EFFICIENT MANAGEMENT OF OUR RAILROADS

EXTRACTS FROM ADDRESS BY HOWARD ELLIOTT, PRESIDENT NORTHERN PACIFIC

**N**OW, when the question of the railways of the country and their rights and requirements are so prominently before the public, there is one point on which it is possible for both the public and the railway management to agree; that is, that the railways must either earn or borrow the money which it is necessary to procure to meet the expense of improving old lines and the cost of new lines, and furnishing better trains and better service, which are not only demanded by the public, but are a necessity if the railways are to keep abreast of the normal growth of the country. Suggestions have been made based on theories and methods yet in an experimental stage, and, therefore, unproven, among which none has claimed more space in newspapers and magazines than the assertion that American railroads can save \$300,000,000 a year—a million a day—by what is termed “scientific management.”

It is unfortunate that at a time when all railroads are face to face with the problem of stemming a rising tide of expense and all the serious business con-

sequences this situation entails, they should be compelled to submit to so bald and blunt a criticism of the efficiency of their management. So widely has public attention been caught by this radical statement that it has seemed desirable that the public be told what it amounts to as a business proposition. Railroad officers are spared this task, however, because the Interstate Commission has discussed it tersely and effectively in a recent opinion about the advance of freight rates. The commission declares that no part of the advanced cost of railroad operation could be made good by “scientific management,” as advocated by a witness in this case, and repudiates the theory in the following language:

“It was, however, earnestly insisted by the shippers that the railroads might and should find other kinds of economies with which to make good this increase in wages. Several prominent manufacturers testified that in their business in recent years wages had been advanced, but that they had not been able to make corresponding advances in the price of their product, and were, therefore, forced to

look about for other ways in which to take up the increase in the cost of production.

“It was claimed that by the introduction of what was termed ‘scientific management,’ the purpose of which was in various ways to make labor more efficient, at the same time increasing the wage paid the laborer himself, much more than the amount of these advances could be saved. One gentleman who described these methods testified that they had been introduced to some extent into the operations of railways with remarkable results, and that from a careful analysis and computation he was satisfied that not less than \$300,000,000 annually could be saved by the proper application of these methods to the business of railroading in the United States.

“It is difficult to see exactly what application the commission can make in this case of this testimony. The witness, who apparently had most to do with the originating and applying of these methods, testified that they were in actual operation in not over one-tenth of one per cent of all the manufacturing establishments of this country. The system is everywhere in an experimental stage. To some extent it has been tried

and is now being tried by our railways. The representative of railway labor who appeared before us stated that these methods could not and should not be introduced into railway work. Upon this record we can hardly find that these methods could be introduced into railroad operations to any considerable extent, much less can we determine the definite amount of saving which could be made. We cannot, therefore, find that these defendants could make good any part of these actual advances in wages by the introduction of ‘scientific management.’”

There is no necessity for comment upon so thorough and decisive a decision that this theory of railroad management is visionary and impractical. It might well be said of our railroads, that without dressing their methods in imposing terms and giving their ordinary practice an undue and fictitious importance, they have for years been exceptionally active in ferreting out and applying all new ideas that promised better efficiency. All business has been seeking to find the best and most economical methods.



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BEAUTIFUL DISH OF VIRGINIAS BERRIES



For many years our railroads and our leading American manufacturers have been applying "scientific management" to their business, and when new methods have been proven to possess real merit, have been quick to adopt them. "Scientific management," as it is now being discussed in the magazines and newspaper press, would have more weight with railroad officers and business men if it were something new, and something more than the theory of one who during all his business life has been a lawyer. It would be more valuable as a suggestion if it did not consist of ideas which have been discussed many times before by practical men, and from which all that is good has been already well sifted and applied to actual business.

In the decision which embodied the opinion of the Commerce Commission upon "scientific management" there also occur several illuminating statements about the importance of railroads to business in this country, which, from such a source, are of great significance. The commission says: "Next to agriculture, our railroads are our greatest single industry. In their ordinary operation and maintenance great numbers of laborers and vast quantities of supplies are used. Railroad extension would mean the employment of additional labor and the purchase of additional material and equipment. \* \* \* So far as such expenditures are legitimate they ought to be encouraged. Our railroads should be kept in a high state of efficiency, and railroad charges should be sufficient to permit this. Necessary extensions and improvements should be made, and the treatment of the railroads by the public should be such as will inspire that confidence on the part of the investing public necessary to obtain funds for such additions."

An important phase of the railroad question, that involved in the fact that to meet the demands of the public for the best local facilities, the best trains and the best service, the railroad must frequently make investments which in the nature of things can never become



Copyright 1910 by R. M. Kellogg Company, Three Rivers, Michigan  
FIELD OF THOROUGHbred PEDIGREE STRAWBERRY PLANTS GROWN BY MRS. WILL OLIVER  
MONONA, IOWA

revenue-producing, is touched upon by the commission in this language:

"In the development of a railroad it must often invest money in permanent structures like a passenger station, which will not add, for the time being, to its revenues. \* \* \* It is reasonable to say that such rates may be charged as will permit the accumulation of a fund to take care of cases of this sort." Again: "The economies just referred to, like the reduction of grades and use of larger equipment, have necessitated large outlays of capital, and upon this an additional return must be earned. Taxes have increased, and are increasing more rapidly than the value of the property. All these influences tend strongly toward higher freight rates, for they not only add to the cost of operation, but they increase the cost of the plant, upon which a return must be made. \* \* \* The demands of the public will continue to add to both the expense of operation and the cost of the plant. Greater safety of operation will be insisted upon, and will require the outlay of considerable sums of money upon way and structures, and also extensive changes in equipment, and will still further add to the cost of operation itself by requiring the employment of additional men and the use of the men under different conditions. It was said by the railway representatives that this increase in expense can no longer be offset by the introduction of further economies in the future, as in the past, and it seems probable that (in the future) the same kind of economies cannot be relied upon to the same extent."

I infer from this that the commission believes the railroads cannot go much farther in employing more efficient methods to offset increased expense. Yet in spite of increasing taxes, higher wages to employes and added expense in every other direction, no small item of which

is the expense of meeting the requirements of board and commission control, which now amounts to about \$20,000,000 a year, new laws are constantly being proposed by our state legislatures which impose new restrictions on the railways. These are added to the existing law and continually increase the burden upon the transportation business of the country, while but few enactments are repealed.

In the seven states in which the Northern Pacific Railway operates its lines there were submitted to the legislatures which are now adjourning more than 225 bills for laws, most of which are admittedly experimental, or founded upon ideas which have not been proven to be sound. Such legislation cannot conform to the demands of sound, conservative business judgment, and such judgment is essential in the management or control of as great a business as that of our railroads, which is only exceeded in bulk and in importance in the United States by that of agriculture. Has the time not now come for an impartial and serious consideration by the people at large as to whether it might not be better for their interests individually and collectively and for all business interests of the country to give the railroads a breathing spell, to eliminate much of the useless and unnecessary restrictive law under which they are compelled to work, and permit them to solve the very serious problem of giving the public what it wants in railroad service and railroad facilities, by encouraging friendly relations and friendly discussion with the public, rather than to have constant friction and bickering?

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Editor Better Fruit:

I enclose check for three dollars to pay my subscription to 1913. I value "Better Fruit" more than any other publication I subscribe for. E. H. Swanson, Omaha, Nebraska.



OREGON CHAMPION GOOSEBERRY  
(REDUCED)



# WE WANT TO TALK BUSINESS

WITH EVERY SHIPPER OF

# APPLES PEACHES PEARS

IN

California, Oregon, Washington, Idaho, Colorado, Utah, Nevada

WRITE US TO-DAY, stating varieties, quantity and probable quality of fruit you expect to ship. Look up our standing; ask "Better Fruit" or your bank

**ROBT. T. COCHRAN & CO.** 290 Washington Street  
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For several years we have been supplying most of the nursery stock planted in the famous Wenatchee district. Our business has grown to one of the largest in the Northwest and we have gained a reputation of which we are proud.

Experience has taught us how to grow the **Cleanest, Healthiest, Best-Rooted Trees in the World.**

Our line is large and complete. Over two million trees sold last year.

Our customers get what they order.

Send in your list, whether large or small.

**COLUMBIA AND OKANOGAN NURSERY COMPANY**

Wholesale and Retail

Wenatchee, Washington

## Situation Wanted

By responsible young man with good education and several years' experience in horticulture; also a good knowledge of bookkeeping and business methods.

Address M. H., care "Better Fruit."

## FOR SALE

Twenty acres near Roseburg; thirteen acres full bearing apples, pears and peaches; new bungalow; on county road, right at Brockway; good school, church, public library. Price \$6,000; terms to suit. Owner for full description.

**UMPQUA HEIGHTS ORCHARD**

Brockway, Oregon

## Would You Like the Fruit Growers' Profits?

We are developing two large commercial orchards in the Willamette Valley, Oregon, and can use to good advantage a little more capital in expanding the business. A small amount invested will bring the same proportionate returns as a large sum. We are well established and thoroughly understand the business. Full opportunity will be given intending investors to investigate the propositions as well as us. We employ only scientific orchardists who are well known in the fruit-growing world. For complete information address C. B., care "Better Fruit."

## Editor Better Fruit:

Enclosed you will find postal order for one dollar for renewal of my subscription for your valuable paper. I must say that of all fruit papers and magazines I take I appreciate none as much as yours, especially the February number, which is considered in Nova Scotia to be the best thing ever gotten out. You will remember the writer was talking to you at the Niagara fruit meeting last August about a copy you published something like a year ago on fertilization of blossoms, showing varieties that were self-fertilizing and other varieties which are sterile. If you could send me a copy of that number I would be very thankful to you for it. Yours truly, C. O. Allen, Kentville, Nova Scotia.

**T**WO excellent Blue Ridge fruit farms in the Shenandoah Valley of Virginia, containing 150 and 200 acres, respectively. First has about 1,000 peach and apple trees, 4 years old; 30 acres additional cleared for planting; small house; price \$2,400. Second has small bearing apple orchard and about 70 acres ready to plant; good house and barn; price \$4,850. Both well watered and fenced; titles perfect; easy terms; low freight rates. Address William Campbell, Charles-Town, West Virginia.

**W**ANTED—To lease or take care of good bearing orchard, by a competent man; understands thoroughly spraying, cultivation, packing, and caring for the orchard throughout the entire season. Address A. H., care "Better Fruit."

**"The Edgemont Lid Press"** FOR SEASON OF 1911  
with New Improvements

Write **H. PLATT & SONS**, Como, Montana



# SPECIALIZATION IN THE FRUIT GROWING INDUSTRY

BY DR. PAUL L. VOGT, PROFESSOR OF ECONOMICS AND HISTORY, W. S. C.

ONE of the most marked tendencies in the fruit growing industry of the Northwest is that of specialization. This tendency shows itself not only in the planting and growth of particular types of fruit, but also in methods of preparing fruit for market and in methods of disposal of crops. Occasionally one will find the old-fashioned orchard in which the owner has planted two or three trees of every variety known to the nurseryman, and from which the owner secures a small quantity of fruit suited to each season of the year. In times past this type of orchard was perhaps best suited to the needs of the community. The aim of the grower was to raise as much of every commodity as he needed for himself, thus making it less necessary to purchase food supplies from others. But those who are going into fruit growing as a business recognize that it is impossible to make the orchard planted for home use succeed as a commercial enterprise. When he raises fruit to sell he considers the wants of others and plants his fruit to meet those wants instead of his own.

Specialization is meeting with favor not only because of the conspicuous success of those who have specialized, but also because it is only through the adoption of this policy that failure can be avoided. In many places one finds fruit going to waste that would demand a market price were it raised under conditions that would enable the owner to bring it to the consumer. But the quantity of any one variety raised is too small or the quality resulting from too little care is so inferior that the owner does not feel justified in attempting to dispose of it. On the other hand, one finds in other communities the same commodities becoming the basis of large fortunes. The secret of difference is specialization.

Two instances of the results of specialization may be cited out of the many to be found in the fruit growing sections of the Northwest. The one is in the growth and disposal of a durable fruit, the other in the handling of a fruit of the most perishable nature. Hood River, Oregon, has become world famous for the apples produced in the Hood River Valley, and in like manner the Puyallup Valley, in Washington, has become widely known as a producer of berries. In each case specialization is carried to the utmost limit. At Hood River, according to a report by the Oregon Agricultural College Experiment Station, 1908, the total number of apple trees one to twenty-five years of age was 349,435. Of this total 174,684 trees were Yellow Newtown Pippins and 150,616 were Spitzenbergs. Thus over ninety-three per cent of all the trees planted were of these two varieties. Those acquainted with later planting state that the same relative proportion is being maintained. In the Puyallup Valley the Puyallup-Sumner Fruit Growers' Association, which handles an estimated amount of seventy-five per cent of all

the fruit grown in the valley, handled during the year 1909 a total of 901,271 pounds of fruit in their cannery and 73,473 packages (crates, boxes, baskets) of fresh fruit. Of the cannery goods 724,695 pounds, or over eighty per cent, were made up of blackberries and raspberries, and of the packages of fresh fruit 69,702, or ninety-five per cent, belonged to these two varieties of fruit. The odds and ends that make up the other five per cent are too unimportant to be worth consideration. It is important to notice that a much larger proportion of other varieties are handled in the cannery. This is an indication that the cannery helps to solve, in a measure, the problems resulting from non-specialization, such as exists in the valley.

The other fruit growing sections of the state do not as yet show the degree of specialization found in the places mentioned above, but the same tendency toward greater specialization on varieties of fruit that have been found specially adapted to the respective districts is apparent.

The economic causes for this specialization are to be found, in part, in the advantage it gives in the disposal of the product. When the grower has a few boxes each of a great variety of apples he must sell them at prices representing the general demand for apples, quality not considered. Neither the grower nor the wholesale dealer can profitably pick out any one variety and attempt to create a special demand for it. But when many varieties are replaced by a few best suited to existing conditions then the dealer who is prepared to handle large quantities of staple articles is interested. The dealer who would not waste postage on a few boxes of first grade

apples scattered among a number of growers will send his agents to bid for the same apples when the growers get enough together to enable the dealer to handle them in carload lots.

Fruit raised in small quantities must also seek a market in the nearby towns whose consuming capacity is limited, but when carload lots are produced then rate advantages may be secured from the railroads that enable them to seek markets large enough to consume the entire supply at good prices. Success in fruit growing appears to demand production on a scale in the community large enough to insure economical handling and transportation facilities sufficient to enable the grower to reach the large markets.

Specialization also shows conspicuous results in the profits rightly enjoyed by those living in a section which has earned a reputation for a high standard of product. When the big red apple, the Yellow Newtown or the Spitzenberg, becomes famous the country over those who can invest in luxuries are willing to pay high prices for the special product, and those who do not buy often, but who want good fruit when they do buy, will select those varieties which have a standard reputation. "Just apples" bring only moderate prices, but apples which are the result of specialization bring large returns.

The successes of the fruit growers of the Northwest may be said to be due to specialization. Specialization in varieties raised, in cultivation, in preparation for market, in advertising and disposing of products have resulted in making the Northwest of prime importance in fruit production. The future will probably see still greater specialization than the past or the present.

## The Orchard Ladder and Manufacturing Co.

Phone, Columbia 255. McDonald Block, ST. JOHNS, OREGON



SET UP

At last a long felt want ladder has been supplied in Swengel's patented portable ladder. This ladder is so complete in every detail that it fills the bill for every possible want in the way of a ladder for orchardists. One man with this ladder can gather as much fruit from the top of the tree as three men usually gather with average type of a ladder. One illustration shows the ladder folded up. The large illustration shows the ladder set up with an extended elevated platform projecting into the tree. Upon this platform fruit can be picked directly into the boxes, reducing the possibility of bruising the fruit to a minimum. The ladder is substantially built and rests so firmly on the ground that any child can pick from this ladder with perfect ease and safety. This ladder can be used for thinning apples as well as picking.



FOLDED

MANUFACTURERS  
OF

## Swengel's Portable Orchard Ladder



## AMERICAN AND CANADIAN EXPORTS DECREASING

REFERRING to the season's shipment of apples and some facts worth remembering, a letter from W. N. White & Co., fruits and general produce, says:

"This week will about wind up the exports of apples to Europe, and the following facts and figures may be interesting and instructive:

	Season 1910-11	Season 1909-10
Port of New York .....	326,219	398,944
Port of Boston .....	440,926	263,626
Port of Portland .....	79,807	248,020
Port of Montreal .....	169,940	587,287
Ports of Halifax and Annapolis	204,254	676,424
Port of St. John .....	5,055	45,356
Boxes of Far Western.....	1,070,500	463,362

"The early spring and late frost destroyed large portions of the crop east of the Rockies and many parts of Colorado. New York kept her supplies up to the average through drawing large lots from the Virginias, where they have gone into extensive planting during the past decade. It will be seen that Boston and Portland combined are about equal for the two seasons. From my own personal observation Massachusetts and Connecticut, that was for many years a 'by word' among the fruit from other states, will in the future have to be reckoned with. Growers there are taking more pains with their orchards, until today the quality is equal to some of the best in New York state.

"Attention is called to the falling off from Montreal, Halifax and St. John of over 800,000 barrels. Last year's warm March, followed with bad weather in May, accounts for this. Otherwise, Nova Scotia alone, with her increasing acreage, expected 1,000,000 barrels. This year things are reversed. They still have cold

weather, and their season is fully four weeks later than last. It is said their trees are looking well, and, having had light crops last year, Canadian ports are expected to ship this year 2,000,000 barrels, or 700,000 more than two years ago.

"Further attention is called to the remarkable increase in far Western boxes, the largest in any previous season exported being 520,000 boxes. This industry started in 1885, and my firm sold the first car that ever was shipped to England. The total growth this year has been reckoned about 15,000,000. Each box when sent to New York pays the railway fifty cents freight. At the present time everything West looks well for good crops. Colorado, that only had 2,500 carloads last season, has already come out with the statement that they expect 10,000 this season. This would mean 8,000 carloads of apples (6,000,000 boxes). The immense tracts laid out in Idaho, Utah, Oregon and Washington during the past ten years, which are now coming into bearing, looks like 28,000,000 to 30,000,000 boxes next season, and it remains to be seen if these quantities will be able to stand the present railway charge.

"All barrels of apples have sold at good prices, but boxes have sold at lower prices than they have in their history, particularly those grown under irrigation. Some of these have arrived in Europe in bad condition, proving that fruit grown under irrigation has poor carrying quality—too much water in the fruit, and as the American government is expending some \$25,000,000 on irrigation, this season's lessons may be of some value."

## THE NATIONAL APPLE CONTEST NEXT NOVEMBER

APPLE GROWERS of America are to have an opportunity for competing for a prize of \$500 in gold at the great New York land show to be held in Madison Square Garden in November.

The prize of twenty-five twenty-dollar gold pieces is offered by Howard Elliott, president of the Northern Pacific, for the best exhibit of twenty-five boxes apples of any variety or varieties made at the American Land and Irrigation Exposition next fall. Competition for this prize is open to the growers of the world, and the exhibitors must be prepared to furnish affidavits as to the crop from which the samples exhibited were taken. The exact terms of award have not yet been decided upon. Gilbert McClurg, general manager of the exposition, and Mr. Elliott, are now in correspondence with pomologists and horticulturists upon this subject, and the decision as to the points of merit probably will be made public early in the summer. Growers can secure full information regarding this apple contest from the American Land and Irrigation Exposition, 149 Broadway, New York City.

The donor of this prize, President Elliott of the Northern Pacific, is also to give away 160 acres of Montana wheat land by popular allotment during the

exposition. Several valuable tracts of land will be given away in this manner, and it is expected that this feature will draw many visitors to the exposition from the surrounding territory.

This first New York land exposition is to be thoroughly representative of American agriculture as well as the most picturesque and instructive call of the land ever presented in the nation. Exhibitors will display their soil and its products, or show maps and relief models of their holdings. Agriculture as it is generally practiced, dry farming and irrigation methods will be demonstrated. Moving pictures, illustrated lectures, literature, growers and agents will demonstrate the possibilities of American soils. In fact the exposition will perfectly illustrate that from the land comes all permanent wealth, and that life on the land affords the greatest measure of independence.

Editor Better Fruit:

I have received your sample copy of the small fruits edition of "Better Fruit," March number, and will say that anyone who can get up a publication of this sort for one dollar a year ought to be encouraged by every grower of fruits in the United States, therefore I enclose you herewith check on West Side Bank, New York, for one dollar to pay for "Better Fruit" for one year, commencing with the May issue. Kindly send me proper receipt for same and oblige. Yours truly, L. G. Loomis, Victor, New York.

THE NORTHWESTERN FRUIT EXCHANGE illustrates its policy of maintaining a thoroughly efficient administrative organization in the selection of Charles A. Malboeuf for the office of secretary. Mr. Malboeuf has been long and intimately connected with the progress of the Pacific Northwest, and is a traffic and publicity man of very extensive experience. Born in Montreal, Canada, where he was educated in the Dominion government schools, he came to Portland in the early nineties, and for fourteen years was with the Southern Pacific Company in that city and in the field, rising rapidly through the various traffic branches to the office of district freight agent for the lines in Oregon, which he held until January, 1910, leaving the railroad service with an enviable record for energetic, intelligent results. He was also previously connected with the Burlington, Union Pacific and Northern Pacific Express Companies, and as a transportation man is one of the most widely and favorably known in the Pacific Northwest. His work as publicity manager of the Medford Commercial Club was particularly effective. Mr. Malboeuf has for years been a close student of the fruit growing industry in Oregon, Washington and Idaho, and has contributed many articles of value to the Pacific Coast press and magazines on the subject. His experience and keen observation, together with his knowledge of the present and future necessities of the fruit situation, from both the view point of the transportation and community interests, specially fit him for the important office and its responsible duties, which he now holds with the Exchange.



SURELY this is one of the most practical propositions yet for sawing large logs—a portable gasoline drag saw mounted on iron-shod skids, capable of sawing twenty to thirty cords of wood per day at a cost of 40 cents for distillate. Further particulars can be had by dropping a card to the manufacturers, the Reiersen Machinery Company, Portland, Oregon.

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PHILADELPHIA

### FANCY BOX APPLES

### Butte Potato and Produce Co.

Jobbers of All  
Farm and Orchard Products

We have a large outlet for fruits and vegetables. We want to hear from shippers.

**A. J. KNIEVES**  
President and Manager

Sixteen years' experience on the Butte market.

### D. McDONALD

Hood River, Oregon

Headquarters for

FARMING AND ORCHARD

## TOOLS

Disc Harrow Extension for  
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#### FARMER NEGLECTS FINANCIAL SIDE.—

"The financial side of farming, the world's greatest industry, is almost entirely neglected by both the farmer and the schools," says Dean J. A. Bexell of the Oregon Agricultural College, author of a volume on "Farm Accounting and Business Methods," now in its sixth thousand. "Professor Bailey, of New York, said, in discussing the matter of his own state: 'In visiting practically every farm in one of the counties of the state we did not find one man who knew how much it cost him to produce milk or to raise any of his crops.' The Secretary of Agriculture, in recent Year Books, points out the remarkable prosperity of the farmer; that the export of farm products is vastly in excess of all exports combined; that a million agricultural debtors have been transformed during the last ten years into the same number of surplus depositors; that 'contrary to his reputation, the farmer is a great organizer, and he has achieved remarkable and enormous successes in many lines of economic co-operation in which the people of other occupations have either made no beginning or have nearly, if not completely, failed.' He points out that most farmers live better than the average merchant or mechanic. It is doubtless true that the farmer is becoming a factor to be reckoned with in the business world; that the average farmer knows vastly more about scientific farming than his father did. He understands more thoroughly the value of proper cultivation, of fertilization, of rotation of crops and of diversified farming. But it cannot be said that he owes his success to improved business methods. He has been successful rather in spite of his ignorance in this respect, and because of the lavish generosity of mother nature." The college is now giving courses in farm business management by mail for the benefit of those who cannot attend the courses at the college. Some fifty have already completed the course.

A special rate of a fare and a third has been made by the railroads for the summer session students at Oregon Agricultural College this year.

Editor Better Fruit:

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## AGRICULTURAL STATISTICS OF STATE OF OREGON

UNDER date of April 18, 1911, Director of the Census Durand issued the first official statement from the Census Bureau relative to the agricultural statistics of the State of Oregon collected at the thirteenth decennial United States census, April 15, 1910. It is based on a preliminary comparative summary submitted to the director by Dr. Le Grand Powers, chief statistician of the division of agriculture in the bureau of the census. This summary shows, for both the census of 1910 and that of 1900, the reported total value of farm land, buildings, and implements and machinery: total acreage, improved acreage, average acres per farm, average value per acre of farm land and buildings, average value per acre of farm land alone, and aggregate expenditures for labor and fertilizers. It also distributes the total number of farms according to color of farmer, specified character of tenure, whether held free or mortgaged by owners and by certain acreage groups.

The director gives notice that the summary's figures are subject to revision later, owing to the fact that a number of farms whose returns are incomplete will be included in the final tables. These additions will not, in all probability, modify any of the amounts or rates contained in the present statement. The census of agriculture was taken primarily for the purpose of obtaining an accurate inventory of all classes of farm property existing on April 15, 1910, a complete exhibit of farm operations during the year ended December 31, 1909, and a statement of the number and value of domestic animals in cities and villages on April 15, 1910. Statements relative to acreage and yield of crops and the domestic animals in Oregon will be issued by Director Durand as soon as the tabulation of this data has been completed.

It is pointed out in the statement today that the principal rates of increase in Oregon in 1910, as against 1900, are: In the total value of all farm land alone, 262 per cent; in the total value of farm land and buildings, 243 per cent; in the average value per acre of farm land alone, 214 per cent; in the average value per acre of farm land and buildings, 197 per cent; in the total expenditures for fertilizers, 133 per cent; in the total value of farm buildings alone, 127 per cent; in the total expenditures for labor, 127 per cent; in the total value of all farm implements and machinery, 102 per cent; in the total improved farm acreage, 28 per cent; in the whole number of farms, 26 per cent, and in the total farm acreage, 15 per cent. The only decrease during the decade, among the items for which per cents are given in the first section of the summary, occurred in the average acres per farm, namely, 8 per cent. The statement shows in detail that the number of farms reported in 1910 was 45,128, as compared with 35,837 in 1900, an increase of 9,291, or 26 per cent.

The total value of farm land and buildings was given in 1910 as \$453,571,000, as against \$132,338,000 in 1900, an increase

of \$321,233,000, or 243 per cent. The total value of all farm land alone was reported in 1910 as \$409,949,000, as compared with \$113,138,000 in 1900, a gain of \$296,811,000, or 262 per cent. The total value of farm buildings alone was given in 1910 as \$43,622,000, as against \$19,200,000 in 1900, an increase of \$24,422,000, or 127 per cent. In 1910 the value of the farm land alone constituted 90 per cent of the total value of farm land and buildings, as compared with 85 per cent in 1900.

The reported value of all farm implements and machinery was \$13,135,000 in 1910, as against \$6,507,000 in 1900, a gain of \$6,628,000, or 102 per cent. The total acreage reported in 1910 was 11,628,000 acres, as compared with 10,071,000 in 1900, an increase of 1,557,000 acres, or 15 per cent. The improved acreage was returned in 1910 as amounting to 4,253,000 acres, as against 3,328,000 in 1900, an increase of 925,000 acres, or 28 per cent. The improved acreage formed 37 per cent of the total acreage in 1910, and 33 per cent in 1900. The average acres per farm reported in 1910 was 258, as against 281 in 1900, a decrease of 23 acres, or 8 per cent. The average value per acre of farm land and buildings in 1910 is stated as \$39.01, as against \$13.14 in 1900, a rise of \$25.87, or 197 per cent. The average value per acre of farm land alone in 1910 was reported as \$35.26, while in 1900 it was \$11.23, the amount of gain being \$24.03, or 214 per cent.

Of the whole number, 45,128, of farms reported in 1910 there were 44,511, or 99 per cent, operated by white farmers, and 617, or 1 per cent, by negro and other non-white farmers, as compared with a total of 35,837 in 1900, of which 35,286, or 98 per cent, were conducted by white farmers, and 551, or 2 per cent, by negro and other non-white. The increase in the number of farms of white farmers during the decade amounted to 9,225, and in the number of farms of negro and other non-white farmers to 66.

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The total number of farms operated in 1910 by owners, part owners and owners and tenants, comprising the "all owners" class, was 37,456, as compared with 28,963 in 1900, an increase of 8,493. The total number of farms conducted in 1910 by cash tenants, share tenants and cash and share tenants, comprising the "all tenants" class, was 6,837, as against 6,366 in 1900, an increase of 471. The total number of farms operated by managers in 1910 was 835, as compared with 508 in 1900, an increase of 327. The total number of farms operated by the "all owners" class constituted 83 per cent of the whole number of farms in 1910 and 81 per cent in 1900; those operated by the "all tenants" class, 15 per cent in 1910 and 18 per cent in 1900, and those conducted by managers, 2 per cent in 1910 and 1 per cent in 1900. Of the total number, 37,456 farms operated in 1910 by the "all owners" class, there were 24,877, or 66 per cent, reported as owned free of incumbrance, and 12,579, or 34 per cent, mortgaged; for 270 of those reported as owned free, however, no report of mortgage debt was secured.

In 1900 information was secured concerning the "owned farm homes." At that time 21,628, or 76 per cent, were reported free from debt and 7,010, or 24 per cent, mortgaged. There were 862 in 1900 for which no mortgage report was secured, these being included in the farms free from debt. The Census Bureau has no information respecting the number of mortgaged farms leased to tenants.

The statement relative to farms distributed according to certain acreage groups shows that those of nineteen acres and under numbered 5,942 in 1910,

and 3,071 in 1900, a gain of 2,871; of twenty to forty-nine acres, 6,829 in 1910, and 4,083 in 1900, an increase of 2,746; of fifty to ninety-nine acres, 6,758 in 1910, and 4,673 in 1900, an increase of 2,085; of one hundred to one hundred and seventy-four acres, 11,856 in 1910, and 11,055 in 1900, an increase of 801; of one hundred and seventy-five to four hundred and ninety-nine acres, 9,321 in 1910, and 9,228 in 1900, an increase of 93; of five hundred and nine hundred and ninety-nine acres, 2,709 in 1910, and 2,440 in 1900, an increase of 269, and of one thousand acres and over, 1,713 in 1910, and 1,287 in 1900, an increase of 426.

Of the whole number of farms, those of nineteen acres and under formed 13 per cent in 1910 and 8 per cent in 1900; those of twenty and forty-nine acres, 15 per cent in 1910 and 11 per cent in 1900; those of fifty and ninety-nine acres, 15 per cent in 1910 and 13 per cent in 1900; those of one hundred and one hundred and seventy-four acres, 26 per cent in 1910 and 31 per cent in 1900; those of one hundred and seventy-five and four hundred and ninety-nine acres, 21 per cent in 1910 and 26 per cent in 1900; those of five hundred and nine hundred and ninety-nine acres, 6 per cent in 1910 and 7 per cent in 1900, and those of one thousand acres and over, 4 per cent in both decades. The expenditures for labor in 1910 reached the sum of \$11,011,000, as compared with \$4,843,000 in 1900, an increase of \$6,168,000, or 127 per cent. The expenditures for fertilizers in 1910 amounted to \$63,000, while in 1900 it was \$27,000, an increase of \$36,000, or 133 per cent.

The preliminary comparative summary for the state follows:

#### FARMS BY ACREAGE, VALUE OF LAND, BUILDINGS, IMPLEMENTS, ETC.

	1910	1900	Pct. Increase 1900-1910
Total acreage .....	11,628,000	10,071,000	15
Improved acreage .....	4,253,000	3,328,000	28
Value of land .....	\$409,949,000	\$113,138,000	262
Value of buildings .....	\$43,622,000	\$19,200,000	127
Value of implements and machinery .....	\$13,135,000	\$6,507,000	102
Average value per acre of land and buildings .....	\$39.01	\$13.14	197
Average value per acre of land alone .....	\$35.26	\$11.23	214
Expenditures for labor .....	\$11,011,000	\$4,843,000	127
Fertilizers .....	\$63,000	\$27,000	133

#### FARMS BY TENURE, ACREAGE GROUPS, ETC.

	1910	1900	Am. Increase 1900-1910
All farms by tenure .....	45,128	35,837	9,291
All owners .....	37,456	28,963	8,493
All tenants .....	6,837	6,366	471
Managers .....	835	508	327
Distribution by acreage groups .....	45,128	35,837	9,291
19 acres and under .....	5,942	3,071	2,871
20 to 49 acres .....	6,829	4,083	2,746
50 to 99 acres .....	6,758	4,673	2,085
100 to 174 acres .....	11,856	11,055	801
175 to 499 acres .....	9,321	9,228	93
500 to 999 acres .....	2,709	2,440	269
1,000 acres and over .....	1,713	1,287	426

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**APPLE CONGRESS AND EXPOSITION FOR DENVER.**—A plan is being worked upon that will bring the next session of the American Apple Congress to Denver, to be held in connection with a national apple exposition. The dates most favored for the holding of this great combined feat is the week of November 6 to 12. Under the proposed plan an exposition association will be organized with a capital of \$50,000. Both the congress and the exposition association are to be incorporated under the laws of the State of Colorado. Invitations have been received by the Congress from several large cities to have the next meeting held with them. Almost all these have "backed up" when informed by the executive officers what sum of money will be required to bring them this meeting. Denver seems to be the only city that is willing to take hold of the proposition and see it through. One apple show held in Denver was an entire success. While there was a small loss the benefits to the city and the apple industry were of untold value. The exposition association will be organized by prominent Denver people and fruit growers. A contract will be entered into by the Apple Congress and the Exposition Association whereby mutual benefits will be derived and a most profitable arrangement perfected. The plan has the approval of all who have been consulted in the matter by Clinton L. Oliver, secretary of the Congress, and the entire details will soon be made public. The season has now arrived when the apple crop conditions are considered settled, and the apple growers are anxious to demonstrate what their various sections can produce. A show such as is proposed will be a wonderful drawing card for growers and dealers, and as no show is more beautiful than an apple show, the attendance in a city like Denver, where one show has been held and the people got a taste of it, will be assured.

**MUSIC LESSONS.**—For the next thirty days the Pacific Conservatory of Music is offering a complete course of fifty-two lessons (for piano or organ), all instruction books, exercises, etc., and thirty copies of best grade music, with an absolute guarantee of results or money refunded. This course may be taken up by anyone whose age is between eight and forty-five. Fifty dollars being the regular price for this complete course; we are offering the same for \$22 for thirty days only. We will also allow four months' time in which to pay for same, or if you wish to pay cash it would be only \$20. What is taught in this year's course are: The fundamental principles of music, sight reading, ear training, time, rhythm, phrasing, pedaling, major and minor scales, elementary harmony, composition, modulation and theory; in fact we will teach the pupil to play well, any kind of music, on completion of this course, which the pupil has two years to complete. You are sure of learning more out of one of our written lessons than you would out of three lessons given by the average so-called music teacher. Our lessons are so arranged that time, touch, technique and expression are the easiest to master. Today we are teaching upward of 1,000 pupils on the Pacific Coast. Many who have struggled for success under the private teachers without results are today fine musicians. On request, we will mail you free of charge two copies of music, also samples of our lessons. Remember, this offer holds good only for thirty days from this date. Make application today. Pacific Conservatory of Music, Portland, Oregon.

**COMMERCIAL VALUE OF DWARF FRUITS.**—"The dwarf fruit as a commercial proposition is still in an experimental condition in this state," said Professor C. I. Lewis, horticulturist of the Oregon Agricultural College, in a recent discussion of the fruits of the state. "The dwarf pear," he continued, "looks quite promising to be used in plantings by itself or as a filler. There is one dwarf pear orchard in Idaho and a number in this state, but few are in bearing as yet. The trees can be planted close together. They come into bearing early and generally produce a fine crop. They are generally worked on Angers Quince or Portuguese stock and then worked over to Duchess and Koonce, and finally worked over to whatever variety is desired. The dwarf is obtained by using a root that is slow growing and then pruning. The pruning should be done in such a way as to throw out the laterals and spurs. Summer pruning is practiced much more with the dwarf stock than with the standard. Dwarf peaches are also being grown; these come into bearing quite heavily the first year. There are several plantings in this state, and it will only be a short time before we will know more of these. The dwarf apple has been tried very sparingly. When it is put on Paradise stock it is more of a curiosity, but when planted on the Doucin stock it may make a satisfactory tree for Western Oregon. The dwarf fruit offers a splendid opportunity for a home garden and a good conservative field for trial in the commercial orchard."

**THE PETROL MANUFACTURING COMPANY** has placed a small ad. elsewhere in this edition which might be overlooked, therefore we are calling the attention of the fruit grower to this commodity, as it is used in filling up cracks and leaks in boats, and it occurs to us it might be used in stopping leaks in wooden sluices.



# FALL BREAKING AND PREPARATION OF SEED BED

BY S. A. KNAPP, UNITED STATES DEPARTMENT OF AGRICULTURE

**U**PON the inauguration of the farmers' co-operative demonstration work in the Southern states it was found necessary to outline some of the fundamental principles of good farming and to insist that the tillers of the soil should become familiar with them and practice them as a first step in the betterment of farm life. These principles are as follows: Prepare a deep and thoroughly pulverized seed bed, well drained; break in the fall to a depth of eight, ten or twelve inches, according to the soil, with implements that will not bring too much of the subsoil to the surface. (The foregoing depths should be reached gradually if a field is broken with an ordinary turning plow. If a disk plow is used, it is safe to go to the above depths at once.)

It is the purpose of the farmers' co-operative demonstration work to insist upon such preparation of the soil as will furnish the best feeding grounds for the roots and such as will provide at all times plenty of moisture and food for the growing plants. It is better to secure ten or twelve inches of well drained, thoroughly pulverized soil filled with humus than to go deeper at the expense of less thorough preparation. The presence of heat, air and moisture is essential to chemical and germ action in the preparation of plant food in the soil. The depths to which these penetrate the soil in the South depend upon the depth of the plowing, provided the soil is well drained. There is no use in plowing down into a subsoil full of water.

It has been proved without question that the roots of plants penetrate the soil deeper and feed deeper in deeply plowed land. Thus, in general, it may be stated that when the soil is plowed three inches deep the plants have three inches of food,

when plowed six inches deep they have six inches of food, and when plowed ten inches deep they have ten inches of food. The fact that the bottom portions of the plowed land are not as rich in available plant food as the top portions shows the necessity of getting more air and heat down to them by deeper tillage. The soil requirements most essential to the growth of plants are heat and moisture. Deep breaking insures air and heat at a greater depth.

For plants to do their best there must be in the soil a constant supply of moisture, so that a film of water can envelop the soil particles and absorb nutritive elements. The hair roots of plants drink this for nourishment. If there is any more than enough to serve as films for the soil particles and capillary water, there is too much, and it should be drained off. This can be determined by digging a hole twenty inches deep. If there is standing water in the bottom of the hole, it indicates that there is too much water in the soil or subsoil. The capacity of a given soil to hold film and capillary moisture depends upon how finely it is pulverized and upon the amount of humus in it. Unplowed lands retain but little water. Thoroughly pulverized soil three inches deep cannot store enough to make a good crop.

In all Southern states there are every year periods of drouth, sometimes not serious, but generally sufficiently protracted to reduce the crop. The remedy for this is increased storage capacity for moisture. This can be accomplished by deep and thorough tillage and by filling the soil with humus (partly decayed vegetation). The effect of deep tillage has been explained. The effect of humus is to increase greatly the storage capacity

of soils for water and to reduce evaporation. A pound of humus will store seven and one-half times as much moisture as a pound of sand, and the sand will lose its water by evaporation three and one-half times more rapidly than the humus. A clay soil will store only about one-fourth as much moisture as humus, and will lose it by evaporation twice as rapidly.

Plants use an enormous quantity of water. An acre of good corn will absorb and evaporate during its growth nearly ten inches of water. About three-fourths of this amount will be required during the last seventy-five days of its growth, or at the rate of three inches of water a month. This is in addition to evaporation from the soil, which, even with the retarding influence of the dust mulch, will amount to several inches each month in midsummer. In case the land is plowed only three or four inches deep, though thoroughly pulverized, it will store an amount of moisture entirely insufficient to supply crop requirements in any protracted drouth. These shallow and generally poorly prepared seed beds are the principal cause of the low corn yields in the South, and they affect the cotton yields similarly, but not so much, because cotton is a more drouth-resistant plant than corn. If planting is done at all, it is folly to prepare a seed bed so shallow as to bring about the almost total loss of the crop some years and a reduced crop every year.

Many farmers plow or cultivate their corn nearly as deeply as they break their land in preparing a seed bed; this leaves no space for roots in the pulverized and aired soil. Roots occupy a large space. If all the roots of a single vigorous corn-stalk were placed end to end they would reach more than a mile, and if allowed by the plowing they will fill the soil to a considerable depth and feed in all portions of it. In the principal corn producing areas of the South the annual rainfall is thirty-five inches or more, and here in a soil properly prepared for corn the great body of the roots will lie from three to twelve inches from the surface and will feed within two inches of the surface if allowed by shallow cultivation.

At the Wisconsin Agricultural Experiment Station it was found that when corn was three feet high the roots had penetrated the soil for two feet, and thoroughly occupied it. At maturity the roots were four feet deep. At this time the upper laterals were about four inches from the surface. At the North Dakota Agricultural Experiment Station the corn roots had penetrated three and one-half feet deep, and fully occupied the ground ninety days after planting. At the Minnesota Agricultural Experiment Station the corn roots had penetrated twelve inches deep and had spread laterally eighteen inches eighteen days after the planting. In most portions of the South nothing less than an eight-inch seed bed will insure even a fair corn crop, and ten inches is safer. Some soils may require more. From six to eight inches

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of preparation for cotton corresponds to eight and ten inches for corn, so far as the requirements of the plant are concerned.

Plowing three, four, five or six inches deep is only common plowing. In our instructions nothing less than eight inches is considered "deep" plowing. We are not advocating a single breaking of eight inches in depth once in two or three years, but the preparation of an eight, ten or twelve-inch seed bed, thoroughly pulverized and filled with humus. It is not intended here to insist that this should be done at once in all cases. These are the depths that must be reached finally to secure the best crop results. The farmer must determine how soon he can secure these depths under his conditions.

Always plow in the fall before the winter rains set in—the earlier after the first of October the better. Always use a cover crop of oats, barley, wheat, rye, vetch or crimson clover, if possible. Every observant farmer has noted that seeds germinate more quickly and that plants grow more rapidly on fall-breaking than on spring-breaking. Fall plowing renders more plant food ready for use, while the preparation of the land in the fall saves work in the spring, when everything on the farm is crowding. A cover crop is a net gain. It keeps the soil from washing, it utilizes the plant food that otherwise might escape into the air, and it adds humus. The soil is improved by the crop, and winter grazing is provided. In plowed land, properly handled, the loss of plant food is less than in unplowed land; more plant food can be produced and more can be stored. In case a cover crop is used the loss of plant food is slight.

An objection is sometimes urged that fall plowed soil becomes saturated with water during the winter and remains wetter and colder later in the spring than land left unbroken in the fall. This is true only upon land not sufficiently drained and where the breaking is shallow. Water passes through deep breaking readily, and with reasonable drainage it is ready for planting earlier than lands broken in the spring. With deep breaking and an abundance of humus it will be possible to dispense with many terraces and yet have no washing of the soil. Terraces are seldom required on the steepest hillsides of the North. Deep freezing opens the soil for the absorption of the rain. When land is nearly level, with a stiff subsoil, it should be flat-broken, but left in ridges or narrow lands about five or six feet wide, suitable for planting, with a dead furrow between. This provides winter drainage and keeps the pulverized soil out of the water, which is important even if unbroken.

The advice to go down gradually is given solely because the inexperienced farmer may try to plow too deeply the first time and bring to the surface too much of the subsoil. The best plan is to use the disk plow, so set that it will not bring the subsoil to the surface. Generally it may be sent down eight, ten or twelve inches with impunity, and,

if done in the fall, with slight addition to the cost of shallower breaking. Double plowing—that is, to break at the usual depth and then follow in the same furrow with a narrower plow or scooter, and go down as deep as desired—is better than shallow plowing, though a little more expensive plan than the use of a disk plow, and not so effective. Many trials, made on a great variety of soils, show that the cost of plowing ten inches deep with a disk plow is on an average about fifty cents per acre more than ordinary breaking, and in double plowing, as above described, the additional cost averages \$1.25 per acre. These costs are somewhat less when a ten-inch depth of plowing has become the rule upon a given field. There is no question that breaking and pulverizing to a depth of

eight to ten or twelve inches and adding plenty of humus is economical. Whether a plant has plenty of food all the time or only part of the time makes the difference between a good crop and a very poor crop.

The depth of plowing must be determined by the farmer himself. He knows the conditions and is the best judge of the cost. In many sections, if done in the fall it undoubtedly pays to sub-soil fifteen or twenty inches. This has been proved by the best farmers and experimenters in the world. Some sub-soils in humid climates have been made so close and compact by the abundant rainfall that air does not penetrate them to aid in preparing plant food. Such fields, therefore, may not show any benefits of sub-soiling until after two or more years. It rarely

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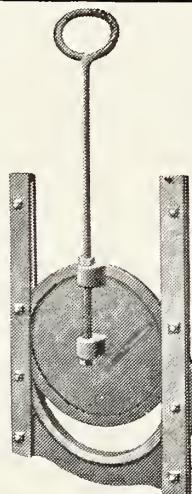
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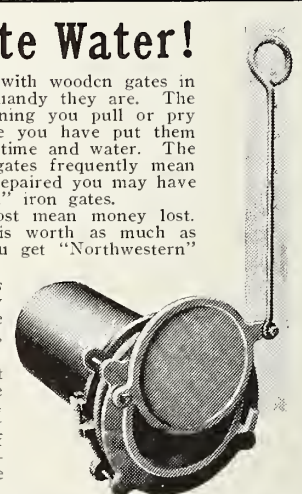
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One "Northwestern" iron gate will outlast a dozen wooden gates. You know how much your wooden gates have already cost you for repairing and replacing, and what you will have to spend this year and next. They may already have cost you more than "Northwestern" iron gates, and the expense of repairing wooden gates goes on year after year. "Northwestern" iron headgates cost a little more, but are worth much more to you than the difference in cost. An iron headgate is cheap because the first cost is the only cost.

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You know how quickly a building that never saw paint goes to rack and ruin.

The boards rot around the nails, they crack and warp.

Only constant repair keeps the building standing.

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## "Dutch Boy Painter" White Lead

and real linseed oil will save your buildings and reduce repair, to say nothing of improving the looks of the place.

Decide to use "Dutch Boy Painter" White Lead this spring. It's a mighty good investment.

Write for our "Helps No. 730" which will tell you why, how, with what and when to paint.

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pays to sub-soil land in the spring, and it is never advisable to use the sub-soil plow when the sub-soil is fully saturated with water, even though the surface be fairly dry. Under such conditions of plowing the clay sub-soil is pressed and packed, when the object is to pulverize it and allow the air to act upon it.

No principle in agriculture has been more thoroughly demonstrated than the value of a deep, thoroughly pulverized seed bed. The Romans plowed on an average nine inches deep—always three times for a crop, and in stiff lands nine times. They did not call three inches "plowing;" it was only "scarifying." The Flemish farmers were the first to follow the better lines of agriculture after the dark ages. They devoted their efforts to three main points: (1) The frequent and deep pulverization of the soil; (2) the accumulation of manure, and (3) the destruction of weeds. A deeper and more thoroughly pulverized seed bed was the foundation upon which England built an improved agriculture, and this principle has been generally accepted there for more than one hundred and sixty years, until the average production has increased nearly five fold.

A late letter from Hon. William Saunders, director of the Central Experimental Farm, Ottawa, Canada, states that farmers usually plow shallow immediately after harvest (August) "to preserve moisture and destroy weeds. \* \* \* In October they commonly plow eight inches deep. Any plowing done in the spring months is usually shallow, not more than six inches deep." Eight inches of breaking in October in Canada, where frosts penetrate three or four feet deep, is better for moisture storage than plowing to a depth of fifteen inches in the Southern States. The writer has visited a number of Southern agricultural colleges this year. In every case the directors of their experiment stations

favored a deep and thoroughly prepared seed bed.

The Georgia Experiment Station bulletins repeatedly urge a deep, mellow and rich seed bed for corn; and they insist that if the soil is not naturally such, it should be made so by tillage and the addition of humus. A bulletin of the Georgia Experiment Station on "Cotton" states that "fourteen years of experimentation have justified certain conclusions that may be accepted as practically final." The following is one of them: "Thorough breaking and commingling of the upper soil, gradually increasing the depth to eight or ten inches, using plow and harrow, is more effective than deeper but less thorough pulverizing."

A North Carolina bulletin states: "It unquestionably pays well to thoroughly break and broadcast-harrow land for corn. Using a two-horse plow and running it eight to ten inches deep, and afterwards harrowing with large smoothing harrow, puts the land in very nice condition."

On the sugar plantations of Louisiana the tillage for cane averages twelve to fifteen inches in depth. On the Ewa plantation, in the Hawaiian Islands, the average depth of plowing is thirty inches. This plantation produces the largest crops of sugar cane to the acre in the world.

Nature's plan of improving soils is to use a cover crop of weeds, grass, shrubs or trees, and to sub-soil by sending the roots down one, two, three or four feet, as the case may be, thus airing and enriching the sub-soil without bringing it to the surface. In the farmers' co-operative demonstration work the importance of a deep and thoroughly prepared seed bed, like a garden, has been most widely demonstrated. Thousands of tests have been made each year by exact and painstaking farmers to an extent that leaves no possible room for doubt as to the great value of a deep and thoroughly prepared seed bed.

Concretely stated, a deep, thoroughly pulverized seed bed filled with humus has the following advantages: It provides more food, because it increases chemical action and multiplies bacterial life in a larger body of soil. It stores more moisture, and it loses its moisture less rapidly on account of its cooler

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The Boneboro Orchard Company is developing about 1,000 acres of the finest orchard land in Hood River Valley. Already 120 acres has been cleared and planted and that much more is being cleared and planted this year. However, so far the developers have been unable to set the orchard rapidly enough to meet the demands of their customers. Therefore, the unimproved land has been placed on the market at low prices and on easy terms for the advantage of investors and orchard men who wish to develop their own property. This land is deep, well drained volcanic soil with a gentle north slope. Railroad station on the land.

Several small tracts to be planted this fall under Boneboro development are still available to persons wishing to secure the best orchard land in Hood River started right.

For full particulars, descriptions and maps address

**BONEBORO ORCHARD COMPANY, Hood River, Oregon**



lower strata and the presence of more humus. It increases the number of roots that a plant will throw out. It allows plants to root deeper and find permanent moisture. It largely obviates the necessity of terracing, because it holds so much water in suspension that heavy rainfalls will go to the bottom and be held by the drier earth above until they can be absorbed by the sub-soil. Humus enables the soil to store more moisture, increases its temperature, makes it more porous, furnishes plant food, stimulates chemical action and fosters bacterial life.

Exceptions to general rules for deep fall plowing: Never plow below the line of standing water in the soil, because the sub-soil cannot be pulverized in water. The water level must first be lowered by drainage. Do no deep fall plowing on light, sandy land or dry, semi-arid plains, and this especially applies to elevated sandy table lands and most of the deep sandy lands of the South. Such lands can be helped by adding humus and using a winter cover crop. The object of deep fall plowing is mainly to increase the supply of plant food and the storage of moisture in the soil. While this preparation is of great value on rolling lands and nearly all fields so long in cultivation that plant growth is medium or less, there are some soils that for the production of cotton better not be deep fall broken, such as very rich and moist river bottoms and the virgin black land prairies of the Gulf States, for the evident reason that there is too much plant food for cotton already available in the soil, with abundant moisture—conditions that make for an excessive growth of the cotton stalks and a consequent decrease in fruitage—even under ordinary conditions. For the cotton crop upon such lands it is better to plow very shallow in the spring and bed upon the firm soil. Do not plow deeply or sub-soil in the spring. The sub-soil is generally too full of water, and it is too late for much effective action of the air upon the soil and for the winter rains to firm the sub-soil before planting for cotton. Thin gray soils, underlaid with yellow or stiff clay near the surface, most of the post oak flats and the comparatively level coast lands should be broken in ridges (back-furrowed) five, six or seven feet wide, according to the crop to be planted. Cotton and corn may be left thicker in the row to offset the wider space between the rows. The dead furrow between the rows should be double plowed and made as deep as practicable, with a good outlet for the water. This method will gradually deepen the soil, increase drainage, reduce washing and give a larger and deeper body of loose, aired earth for the roots. This plan is excellent when surface drainage is necessary. Soil to be live and friable must be kept out of standing water winter and summer.

The sugar planters of Louisiana all use the ridge method (generally seven feet wide) for both sugar cane and corn. The dead furrow is as deep as a plow drawn by four or six heavy mules can penetrate at the last breaking. This

gives an average depth of tillage of twelve or fifteen inches. The adoption of the ridge method on demonstration fields in the Yazoo Delta in 1906 increased the yield of corn from fourteen bushels per acre to seventy bushels. No fertilizer was used.

In case no winter cover crop is used the soil should be disked or harrowed two or three times during the winter, provided it is dry enough. Give good drainage to all parts of the field. Any cultivation done after the deep fall breaking should be shallow—not more than three or four inches deep.



**H**HEATING ORCHARDS to protect buds, flowers and young fruit from late spring frosts has proven to be practicable. There are three ways of generating heat in the orchard—by burning oil, by burning coal and by burning wood or brush. Heat is what is wanted, and not smoke. Smoke will help, at times, but cannot often be depended upon, especially in the hilly or rolling lands of Missouri. In a deep valley the smudge value of smoke would be the greatest. If smoke can be made to hang over the orchard it serves the purpose of preventing the escape of a great deal of natural heat which radiates from the earth.

In Missouri it will rarely be necessary to raise the temperature more than two or three degrees in order to save the crop. Swelling buds, full blown flowers, and even young fruit, can stand more cold than is generally supposed. The degree of cold that will be fatal will depend upon the stage of development of bud, flower or fruit. The danger points for peaches are as follows: Buds appreciably swollen, zero; buds showing pink, 15 above zero; almost open, 25 above zero; flowers newly opened, 26 above zero; petals beginning to fall, 28 above zero; all petals off, 30 above zero; "shucks" (calyx tubes) beginning to shed off, 32 above zero. It should be added that the farther along the young fruit is in its development the less cold it can stand. The most tender stage is not when trees are in full bloom. The danger points for apples would correspond pretty closely to the different stages enumerated for peaches.

The danger points mentioned are conservative, as in each case a little lower temperature would not kill, but heaters should be lighted as these lines are approached. This applies to oil burners. When coal is used the heaters will have to be started from thirty to sixty minutes earlier, as they are slower in warming up. The same thing is true of burning wood. When the temperature is falling rapidly, in all cases, heaters should be started decidedly earlier than when it is going down gradually. Complete preparations for the heating should be made well in advance. The heaters may have to be filled and left in the orchard two or three weeks before they are needed. In the meantime they must be carefully covered, as rains may occur and wet coal, or water in oil, will cause very inefficient fires.

The number of heaters per acre will vary somewhat, depending upon their size and heat-giving powers. No heater holding less than two gallons of oil should be used, as it is not practicable to refill them during the night if used on a large scale. Coal burners also should be large enough to burn from five to seven hours. Used as a protection against spring frosts it will rarely be necessary to keep the fires going longer than four hours—from two o'clock in the morning until six—but in extreme cases they may have to be started as early as eleven o'clock. Always prepare for the worst. For apple and peach orchards it is not safe to use less than sixty or seventy of the larger types of heaters per acre. For the moderate sizes of both oil and coal burners eighty to one hundred per acre should insure absolute protection. In open strawberry fields at least 125 heaters per acre should be used to insure safety in time of very low temperature. The same is true of vineyards.

There are fifteen or more kinds of orchard heaters on the market, and prices vary all the way from \$20 to \$45 per hundred. The average price would be about \$30 per hundred, regardless of make, as the larger the heater used the fewer will be required per acre, and vice versa. Of course, these figures are only approximate. Oil in lots of less than a tank car (6,000 to 10,000 gallons) costs about five cents per gallon. In car lots the cost is two and one-half cents per gallon. Use nothing but fuel oil of thirty degrees specific gravity. This can be purchased through oil dealers everywhere. Oil may be stored in galvanized iron tanks or in cemented cisterns, where the walls have been coated over with a layer of asphalt paint to prevent leakage. Tanks holding 1,200 gallons cost about \$88 each. Where fuel and other things are purchased in large quantities the cost per acre is relatively less. Small orchardists should combine when purchasing supplies.

The cost of heating a fifteen-acre orchard, or larger, the first year would approximate \$45 to

\$50 per acre. Less than fifteen acres, where the owner purchased alone, the cost would be about \$55 to \$60 per acre. These estimates include heaters, fuel, storage, tanks and labor. Tank wagons would cost extra. After the first year the cost for heating would not be more than \$10 to \$20 per acre. These figures refer to oil heaters. We do not have the data for coal burners, but they would be no more, and probably less. Where a large block (10 acres or more) is heated the number of heaters per acre will be reduced, as fewer will be needed in the interior of the orchard. W. L. Howard, University of Missouri, Columbia, Missouri.

## WHY GO WEST?

Virginia offers this opportunity:

70-acre bearing apple orchard for sale. Trees vigorous, 12 to 20 years old. Ideal soil and location; no frost; elevation 1500 feet; low freight rates. Pleasant home; fine neighborhood. This orchard, together with all crops, extra land, horses and machinery, \$26,500.

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R. D. 2

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We can sell all or half of a fine eighty-acre ranch, located in the famous White Salmon Valley, Washington, and only one and one-half miles from railway and steamer landing.

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Six-room house, with large living room and fireplace, bathroom, hot and cold water, etc.; about twenty-five acres cleared and in fruit, consisting of strawberries, apples, pears, peaches, etc.

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Is the answer many a man has had to take during this last month, because he waited until the last moment to place his order, only to find stocks depleted and assortments broken.

It is time now to lay your plans for next season. If you are going to be on the market for nursery stock, drop us a line. We have splendid, clean, thrifty, guaranteed stock, on which we want to quote you. Quality comes first, with us, and we have what you want.

Our 1911 catalog is ready for your inspection, and we want to mail one to your address.

We need more salesmen, and if you can sell trees let us show you our proposition.

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# Rogue River Valley

400-ACRE TRACT. FOR DEVELOPMENT AND SUBDIVISION.  
THE BEST RED SHOT AND LEAF MOLD BOTTOM SOIL.  
ONLY \$75.00 PER ACRE. TERMS. FOR QUICK TURN.

About 110 acres cleared. One to three miles from two main line railroad stations, about eight miles from here. Practically level. All tillable. Portland and Frisco auto tourists travel main county road through this tract. Two bearing family orchards, one shown on left. Nothing to compare with it in quality and price, in any high class district.

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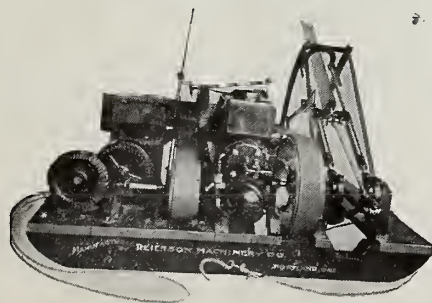
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VIA

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Round Trip Summer Excursion Fares will be effective on dates shown below in May, June, July, August and September, 1911, to

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Baltimore .....	107.50	do via Kansas City....	68.70	St. Joseph.....	60.00
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do via St. Paul .....	63.90	do via Council Bluffs..	63.90	do via Kansas City....	65.70
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May 16, 17, 18, 19, 22, 23, 24, 25, 27, 28, 29  
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 Choice of routes.  
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## \$250.00 Secures Five Acres and Sixty Monthly Installments of \$37.50 Make Them Yours in THE HEART OF HOOD RIVER VALLEY

You have had many chances to buy apple orchards on the installment plan, but **THE CENTRAL ORCHARD TRACTS** are the first ever offered in **HOOD RIVER VALLEY PROPER** on the easy-payment plan. You will not be financing a doubtful experiment, but buying the best land in Hood River Valley.

The tracts will be planted and cared for during a period of five years, on the terms outlined. For particulars and plats address.

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# STANDARDIZING FRUIT—GROWING AND SHIPPING

ADDRESS BY W. C. WALKER, OF PIONEER FRUIT COMPANY, AT WESTERN FRUIT JOBBERS' CONVENTION, SACRAMENTO, CALIFORNIA


IT CAN safely be said that the fruit industry has been a matter of epochs—first, the growing epoch; This, when it was learned that the California soil and climate were particularly adapted to the growing of fruits of almost every known clime. The quantity, however, became so great that the question of selling became a serious matter in order to work out of the fruit the "sinews of war" necessary to make the industry commercially possible. This led to organization, which has branched in many directions. These organizations have gradually developed what might be termed the marketing epoch. The shipping companies and other organizations found from experience that it was necessary to have well controlled avenues to market so as to avoid unnecessary and disastrous competition. Through these avenues it became very apparent there was still another question that developed remarkably as the industry became greater, and that question was one that could safely be considered outside the field of competition. Fortunately the growers themselves—the original owners of the fruit—were of a like frame of mind with that of the commercial factors, and between them opened up last year what might be properly called the standardization epoch. The results of the first year's operation have been very gratifying. While the scheme was entered

into with fear and trembling the year has wound up with the banners flying. Even the most skeptical have become convinced that standardization is going to mean as much in the development of markets as anything that has happened in the fruit business outside of organization work.

It can be said that organization and standardization practically go hand in hand. Were it not for organization of local committees in each respective county the scheme could not have been launched successfully. Of course, there were several mistakes made, and we all realized that we would encounter some snags. But fortunately all recognized that it was a new venture and were willing to be patient, fair and considerate, and let the little aggravations of the first year be jotted down in the experience book, to be taken up at the deliberations in the near future.

I have been actively engaged in the marketing of standardized fruit, and have watched the same very closely because I had faith in the quality of the California product if the trashy fruit were eliminated and kept at home. I have known for a long time, from Eastern experience as well as Coast, there is only one basis on which California can control the market, and that is quality. Of course, we have many varieties that will always find a market because no other section of the United States pro-

duces them, but these are not our biggest factors. The varieties that return the largest amount of money to Northern California are apples, peaches, pears, plums and grapes. We encounter these in many states, especially peaches. Consequently considerable attention has been devoted to perfecting the peach pack. Last summer it was a source of great satisfaction to be able to look over the manifest of a car and tell to a nicety just what it contained in the matter of sizes. When a customer would call for a car running heavy to a certain size peach we could offer it with very little delay, whereas heretofore it has been almost like a leap in the dark. In turn, this season the buyer of a car, promptly on having the car confirmed to him, could give his salesman instructions to sell so many boxes of a certain size and was sure to deliver just what he had sold. When the car arrived at its destination it was a comparatively easy matter to sort into sizes and distribute in a very short time, whereas heretofore it has been a question of opening up almost every box to find if the peaches were large or small. While this may not seem much of a factor in California, in the Eastern markets, where time is so precious, it has meant the difference between immediate handling and delayed handling of the produce. It also developed this season if peaches were too small size to pack a satisfactory



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SPRAY  
FLUIDS**

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Hood River, Oregon, Nov. 27, 1909.  
This is to certify that I have used Cooper's Tree Spray Fluids, V1, for killing San Jose scale and found it very effectual.  
G. R. Castner, County Fruit Inspector.

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DESTROYS INSECTS IN THE GROUND  
REDUCES LOSSES SAVES PROFITS  
IT WILL PAY YOU TO INVESTIGATE  
Write for 1910 booklet (32 pages)  
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SPECIAL ORANGE BOX  
COUNT 31000  
COATED NAILS  
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WE MAKE 200 DIFFERENT SIZES.  
SUITABLE FOR EVERY PURPOSE

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On a keg of Cement Coated Nails stands for the best nails for any purpose.  
They are almost universally used for fruit boxes.  
They drive easier, hold tighter and cost less than the uncoated or barbed nails.  
There are imitations on the market.  
BEWARE! Always specify  
**PEARSON'S**  
Made only by  
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Boston, Massachusetts  
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315 Monadnock Building, San Francisco  
Pacific Coast Sales Agents

P. S.—By sending 4 cents in stamps to our San Francisco office, to cover the postage, we will send free a "PEARSON" Nail Puzzle, a novelty that will afford considerable amusement.



two-tier pack they could be packed three-tier, and a certain trade was always willing to buy three-tier peaches at a commensurate price, whereas before a two-tier pack of too small peaches meant rejection, and frequently nothing in return, often not sufficient to pay the charges. This led to more peaches being packed in crates when they ran below a certain size. Of course, crate pack has been put up for many years, but I believe there have been fewer complaints from the f. o. b. trade on peaches packed in crates than in former years, chiefly due to the fact that there was no deception, as it was well known that peaches packed in crates were of good quality, but small. I am not trying to urge the packing of peaches in crates, except on certain varieties which go to auction, for the reason that the Western trade like the peaches put up in the California boxes because they can be re-shipped and handled easier, and with less danger of the facing being disturbed and the pack being called slack and poor.

In plum packing we have unquestionably made great strides. In fact if it were not for standardization in Placer

County the market would have been surfeited with small-sized, unmarketable Burbank plums, put up in the old style three-tier pack, whereas this year it was a blessing to have a lot of this fruit kept at home, and thus make way for the fruit that was fit. In turn this developed the permanent place for a four-tier pack of small plums. We found many markets that will pay as much for a small plum packed four tier as they will for a reasonably good sized plum packed three tier, for the reason there is a certain class of fruit stand trade that can use a small plum very profitably. The same applies to prunes.

On the question of pear packing California has always stood pretty well. The main advantage this year was that wormy stock was kept at home, and gnarly fruit was also tabooed. In fact a certain section that was always looked upon as having second-class Bartlett pears this year outsold all the other sections, and I think it was almost entirely due to the fact that that section accepted standardization and the other two main sections did not accept the rulings, with the result that the plan

proved itself in the pears more than in anything else in showing the relative advantages. I believe in another season that sections like the Sacramento River and Suisun would be many dollars ahead if they were to accept some form of standardization, so as to keep at home the shipments of under-sized and immature stock that never colors or ripens, and becomes a stumbling block for the better quality that is shipped about a week later. If first class Bartlett pears were marketed from the beginning we couldn't begin to supply the demand, but the trouble is that a few early cars are put on the market, the buyer obtains a small supply at a big price, the fruit never colors and becomes the worst kind of a drug in the store, so much so that he will not put in a stock of the later arrivals, and thus forces the market down through lack of demand. The grower actually suffers more through obtaining a good price on the first few cars and a low price on the great many cars following than if he were to keep his product on the trees until the fruit was riper and more fit for human consumption. This is a very important question, because in the Bartlett pear Northern California has an asset that is very great indeed, and by the proper handling this variety can be made one of the greatest money makers in the business. There is almost no limit to the marketing possibilities of Bartlett pears if put up in the right way. The California Bartlett is known in the United States, Canada and Mexico as standing in a class by itself. It is one of the few fruits that ripen to a greater state of perfection off the tree than on, so that when eating a California Bartlett pear the consumer enjoys something that cannot be equalled for lusciousness. A little attention to this question would return vastly more than the outlay of time and money.

Grapes—In the packing of grapes we are really somewhat in an experimental stage. It is generally admitted that we have a receptacle that is not conducive to the best carrying of our product. It is a problem as to the direction in which we should bend our efforts for a package to take the place of the present one. The experiments as carried on at Lodi by the United States Department of Agriculture have shown almost conclusively that the so-called commercial pack is not good for the product. It develops decay because the fruit is injured through pressing and crowding, the bloom is rubbed off and ventilation is seriously interfered with. I believe that in handling the product of a great vineyard a new method will have to be adopted to make a satisfactory pack. I believe that the tendency is rapidly developing in the direction of a centralized or house pack, the same as in the orange and apple business. I believe in time the home pack will almost entirely disappear, except in sections where the vineyards are comparatively small and the farmer, with his family, is able to handle most of the product. Where one has to depend on outside help it will be necessary to centralize the pack so as

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to get the highest efficiency on the pack itself and the closest kind of unbiased supervision as to what should go into the package. The grape business has unquestionably been seriously interfered with by poor packing, and I believe that the committee at Lodi, also other sections, where house pack is rapidly coming into favor, would do well to spend part of the fund on experimental work—developing a new style package.

This season the writer personally examined quite a few thirty-pound lug boxes of Tokays in Portland and other cities, and found that the fruit shipped in the thirty-pound lug boxes showed up in excellent shape, much better than the same fruit packed in the ordinary crate, but the trade was not educated up to the package and were not altogether in favor of it because it did not make an ideal re-shipping package, a feature that has to be carefully considered. A great proportion of the California fruit is re-shipped into small towns after it is unloaded from the car, and it is necessary to have a snug package, and one that is easy and safe to handle.

Markings—I believe that we should have a uniform system of marking for each variety of fruit. I do not believe that Placer County should have one system, Solano, Yolo and Fresno Counties each another, as it is confusing to the buyers. I was told when East that the marking, such as "Not over 72 peaches," was disliked for the reason that many of the buyers are foreigners, who are not familiar with the English language, and although they understood the figures "72" or "84," or whatever numbers might be on the box, they did not read the English words surrounding it to the effect that the box contained that number and larger, and when they would buy ten or fifteen packages and find some 84s, some 72s and some even larger, there was an immediate howl and claim that the grower was trying to fool them. The marking that seemed to be most in favor was the system that prevails in the dried prune business, that is "60 to 70," "80 to 90," etc.; then the buyer would have no doubt in his mind as to the approximate number of pieces of fruit in the box. A great proportion of our

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fruit is afterwards sold by the dozen, and the small buyer can figure approximately the number of dozens he can get out of a certain size package, and will offer them for sale at his stand at the same ratio. On plums I would recommend that all districts adopt a plan of showing the number of tiers and the size, such as 3x4s three-tier, 4x5s three-tier, etc. This will show the purchaser the number of pieces he can expect in the top layer and the number of tiers in the crate, and he can figure up very quickly about how many dozens he can get from a certain package. As it requires some skill to make the proper kind of a plum pack, and frequently plums do not run uniformly, I believe an attempt to mark the number of pieces on a crate is a mistake. The trade would prefer to have it shown, as I have previously stated. The same applies to apricots.

On pear packing I believe the most acceptable method would be the tier mark. The trade is not so particular about knowing whether a box contains an exact number of pears, but they want to know whether it is a four, five or six-tier pack.

On grape packing I believe the package should state whether it is two basket, four basket or six basket and the style of pack, and whether it is piling or bunch.

Cherries—I believe the row pack is preferable, and the counting should be done on the end, and not on the side, so as to make the marking and counting more uniform. Some districts have a plan of counting the number of rows on the side, and it works against them for the reason that they lose about a row, because a ten-row on the front is about eleven rows on the side, and the trade buying for shipment is particular in

regard to the markings on cherries, and they willingly pay more for a ten-row cherry than an eleven-row, and the grower might just as well get the benefit. I believe that we should make a difference in the price on our large sized fruit as against the small sizes, just the same as in the orange business. Of course, this was not done in the season just past, except in a very few instances, because the new system was not gener-

ally understood. It would have been a mistake to try and bring about too many changes at one time. I think this coming season we should consistently try to make a difference in price on the large as against the small sized fruit, so that the grower who has the more desirable sizes can obtain the benefit of the market, and this will encourage more care in selecting. I would also recommend and strongly urge that all districts wheel into line on the question of standardizing. One non-standardizing district shipping poor fruit will undo the good of many districts shipping standardized fruit. As an example, a car of poor fruit will be rejected, a low price made on it and immediately the wires flash the news that the market has been cut, whereas the market in general has not been cut, but a lower price made to dispose of the poor car, but many unscrupulous buyers take advantage of the situation and give out the impression generally that the market has gone to pieces, etc. The districts that have adopted standardization would do well to keep up the agitation in the districts that have not done so as a matter of self-protection and advancement of the business.

In concluding I wish to say that I do not believe the cost amounts to anything as compared with the results obtained, and I hope that this winter will see many meetings called for the sole purpose of adopting and improving plans for standardization. Northern California will then be making for all time an industry that is not only pleasant to follow, but profitable in its outcome. This question is of immense importance to all of us, and I hope the plan of standardization will be adopted throughout the entire deciduous belt.

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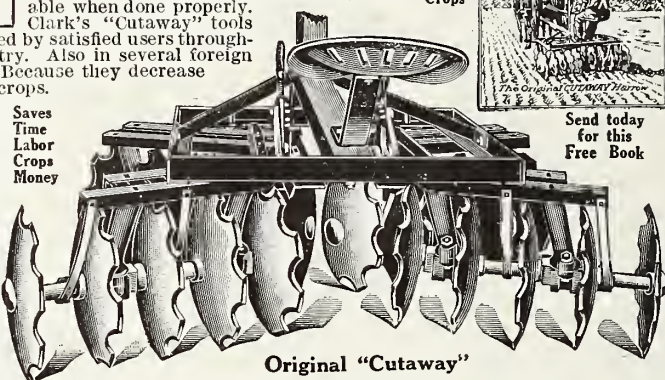
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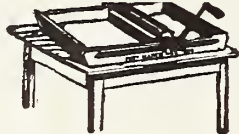
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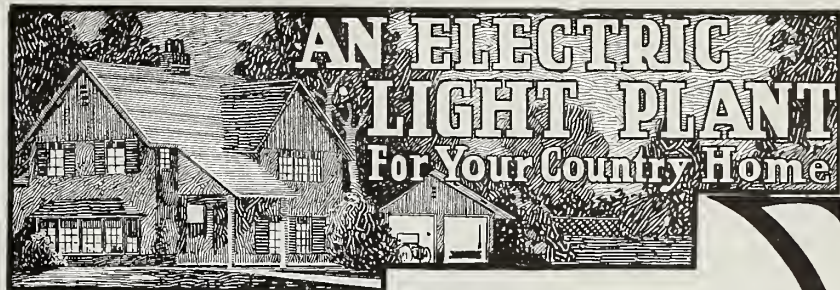
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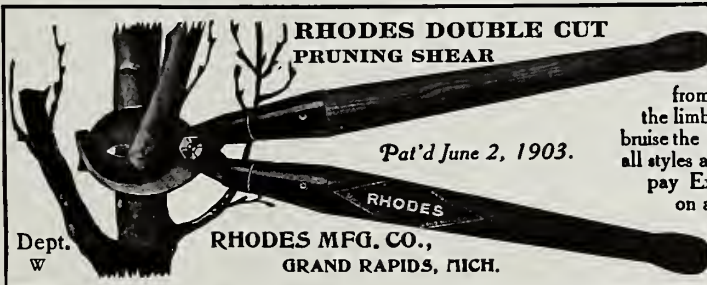
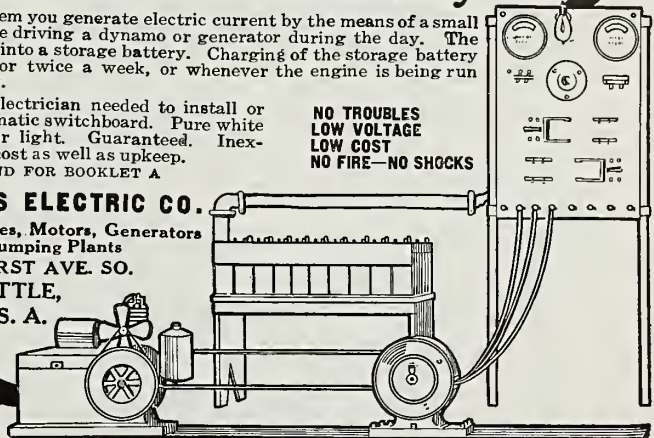
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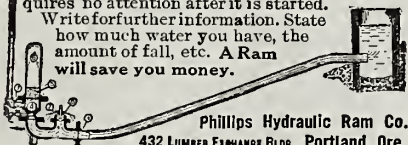
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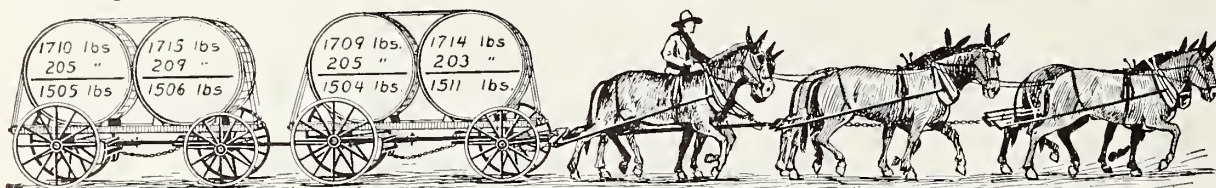
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## NORTHWEST GROWERS' UNIONS AND ASSOCIATIONS

WE publish free in this column the name of any fruit growers' organization. Secretaries are requested to furnish particulars for publication.

### Oregon

Eugene Fruit Growers' Association, Eugene; Ashland Fruit and Produce Association, Ashland; Hood River Fruit Growers' Union, Hood River; Hood River Apple Growers' Union, Hood River; Grand Ronde Valley Fruit Growers' Union, La Grande; Milton Fruit Growers' Union, Milton; Douglas County Fruit Growers' Association, Roseburg; Willamette Valley Prune Association, Salem; Mosier Fruit Growers' Association, Mosier; The Dalles Fruit Growers' Union, The Dalles; Salem Fruit Union, Salem; Albany Fruit Growers' Union, Albany; Coos Bay Fruit Growers' Association, Marshfield; Estacada Fruit Growers' Association, Estacada; Umpqua Valley Fruit Growers' Association, Myrtle Creek; Hyland Fruit Growers of Yamhill County, Sheridan; Newburg Apple Growers' Association, Newburg; Dufur Valley Fruit Growers' Union, Dufur; McMinnville Fruit Growers' Association, McMinnville; Coquille Valley Fruit Growers' Union, Myrtle Point; Stanfield Fruit Growers' Association, Stanfield; Oregon City Fruit and Produce Association, Oregon City; Lincoln County Fruit Growers' Union, Toledo; Rogue River Fruit and Produce Association, Medford; Mount Hood Fruit Growers' Association, Sandy; Northeast Gaston Farmers' Association, Forest Grove; Dallas Fruit Growers' Association, Dallas; Northwest Fruit Exchange, Portland; Springbrook Fruit Growers' Union, Springbrook.

### Washington

Kennebec Fruit Growers' Association, Kennebec; Wenatchee Fruit Growers' Union, Wenatchee; Puyallup and Sumner Fruit Growers' Association, Puyallup; Vashon Island Fruit Growers' Association, Vashon; Mt. Vernon Fruit Growers' Association, Mt. Vernon; White Salmon Fruit Growers' Union, White Salmon; Thurston County Fruit Growers' Union, Tumwater; Bay Island Fruit Growers' Association, Tacoma; Whatcom County Fruit Growers' Association, Curtis; Yakima Valley Fruit and Produce Growers' Association, Granger; Buckley Fruit Growers' Association, Buckley; Lewis River Fruit Growers' Union, Woodland; Yakima County Horticultural Union, North Yakima; Evergreen Fruit Growers' Association, R8, Spokane; White River Valley Fruit

and Berry Growers' Association, Kent; Spokane Highland Fruit Growers' Association, Shannan; Lake Chelan Fruit Growers' Association, Chelan; Zillah Fruit Growers' Association, Toppenish; Kiona Fruit Growers' Union, Kiona; Mason County Fruit Growers' Association, Shelton; Clarkston Fruit Growers' Association, Clarkston; Prosser Fruit Growers' Association, Prosser; Walla Walla Fruit and Vegetable Union, Walla Walla; The Ridgefield Fruit Growers' Association, Ridgefield; The Felida Prune Growers' Association, Vancouver; Grand View Fruit Growers' Association, Grandview; Spokane Valley Fruit Growers' Company, Spokane; Goldendale Apple Growers' Union, Goldendale; Yakima Valley Fruit Growers' Association, North Yakima; Southwest Washington Fruit Growers' Association, Chehalis; The Touchet Valley Fruit and Produce Union, Dayton; Lewis County Fruit Growers' Association, Centralia; The Green Bluffs Fruit Growers' Association, Mead; Garfield Fruit Growers' Union, Garfield.

### Idaho

Southern Idaho Fruit Shippers' Association, Boise; New Plymouth Fruit Growers' Association, New Plymouth; Payette Valley Apple Growers' Union, Payette; Parma-Roswell Fruit Growers' Association, Parma; Weiser Fruit and Produce Growers' Association, Weiser; Council Valley Fruit Growers' Association, Council; Nampa Fruit Growers' Association, Nampa; Lewiston Orchard Producers' Association, Lewiston; Boise Valley Fruit Growers' Association, Boise; Caldwell Fruit Growers' Association, Caldwell; Emmett Fruit Growers' Association, Emmett; Twin Falls Fruit Growers' Association, Twin Falls; Weiser River Fruit Growers' Association, Weiser.

### Colorado

San Juan Fruit and Produce Growers' Association, Durango; Fremont County Fruit Growers' Association, Canon City; Rocky Ford Melon Growers' Association, Rocky Ford; Plateau and Debeque Fruit, Honey and Produce Association, Debeque; The Producers' Association, Debeque; Surface Creek Fruit Growers' Association, Austin; Longmont Produce Exchange, Longmont; Manzanola Fruit Association, Manzanola; Delta County Fruit Growers' Association, Delta; Boulder County Fruit Growers' Association, Boulder; Fort Collins Beet Growers' Association, Fort Collins; La Junta Melon and Produce Company, La Junta; Rifle Fruit and Produce Association, Rifle; North Fork Fruit Growers' Association, Paonia; Fruita Fruit

and Produce Association, Fruita; Grand Junction Fruit Growers' Association, Clifton, Palisade, Grand Junction; Palisade Fruit Growers' Association, Palisade; Peach Growers' Association, Palisade; Colorado Fruit and Commercial Company, Grand Junction; Montrose Fruit and Produce Association, Montrose; Hotchkiss Fruit Growers' Association, Hotchkiss; Paonia Fruit Exchange, Paonia; Colorado Fruit Growers' Association, Delta; Crawford Fruit Growers' Association, Crawford; Manzanola Fruit Growers' Association, Manzanola.

### Montana

Bitter Root Fruit Growers' Association, Hamilton.

### Utah

Farmers and Fruit Growers' Forwarding Association, Centerville; Ogden Fruit Growers' Association, Ogden; Brigham City Fruit Growers' Association, Brigham City; Utah County Fruit & Produce Association, Provo; Willard Fruit Growers' Association, Willard; Excelsior Fruit & Produce Association, Clearfield (Postoffice Layton R. F. D.); Centerville Fruit Growers' Association, Centerville; Bear River Valley Fruit Growers' Association, Bear River City; Springville Fruit Growers' Association, Springville; Cache Valley Fruit Growers' Association, Wellsville; Green River Fruit Growers' Association, Green River.

### British Columbia

Peachland Fruit Growers' Association, Limited, Peachland; British Columbia Fruit Growers' Association, Ladner; British Columbia Fruit Growers' Association, Victoria; Victoria Fruit Exchange, Victoria; Hammond Fruit Association, Hammond; Western Fruit Growers' Association, Mission; Mission City Fruit Growers' Association, Mission; Hatzic Fruit Growers' Association, Hatzic; Farmers' Exchange, Salmon Arm; Okanagan Fruit Union, Limited, Vernon; Farmers' Exchange, Kelowna; Kootenay Fruit Union, Limited, Nelson; Grand Forks Fruit Growers' Association, Grand Forks; Creston Fruit and Produce Exchange, Creston; Kaslo Fruit Growers' Association, Kaslo; Summerland Fruit Growers' Association, Summerland.

THE J. C. PEARSON CO., "The Cement Coated Nail People," office No. 315 Monadnock Building, San Francisco, California, have gotten out a unique and interesting Nail Puzzle, which they are distributing gratis to those who ask for them. Send a postal card to the above address and the Pearson people will do the rest.



## THE FEEDING OF THE GARDEN SOIL A NECESSITY

A VARIETY of plants with a variety of plant food requirements are grown in the garden. To meet the growing needs of all these different plants many different kinds of fertilizers must be used on the garden soil. The garden gives large yields in proportion to the area cultivated, and no labor or means should be spared to make it yield in abundance.

We like to begin to fertilize our garden soil early in the winter, in fact just as soon as the crops are harvested in the late summer and fall. Small amounts of

trash and manure accumulate about the buildings and grounds. These amounts, when raked up and collected, are too small to pay for hitching up to the wagon and hauling to the fields, hence we use the shovel and wheelbarrow and get this stuff on the garden as fast as it is formed. The ashes from our wood stoves are removed at frequent intervals and placed about the base of the grapevines, bush fruits and larger fruit trees. The winter and spring rains leach out the easily soluble potash and other mineral elements of the ashes and carry them to the roots

of the fruit trees, bushes and vines for early feeding when spring growth begins. Wash water and other soapy slops are poured on the vegetable garden, the small fruit patch and on the flower beds. It is true these slops do not contain large amounts of fertilizing elements, but they must be disposed of in some way, and it is better to save them for fertilizing food and flower crops than to throw them out in the back yard anywhere, or to allow them to run away through the underground drain pipe. The dirt and waste about the dwelling can be utilized in the garden soil better than in any other way, and in a few

years the fertilization amounts to considerable. About twice each week the cow lot is cleaned with the rake and shovel, and the scrapings, amounting to some half a dozen wheelbarrow loads, are removed to the garden and dumped in piles. By spring gardening time these small piles are decomposed and in fine condition for working into the soil, either for the vegetable or for the flower beds. Cow manure is mild and safe to use with the tenderest of plants, as very little heat is given off in decomposition. That which has remained in small heaps over winter in the garden works up in spring as fine as the finest garden loam, and is one of the best all around garden fertilizers that can be used.

The droppings from the poultry houses are cleaned out regularly during the winter and either applied direct to the garden soil or mixed with the stable manure and applied with it. As poultry manure is very strong, it should be applied thinly over the surface. A little of it will go a long way. Where coal ashes or other similar absorbing material is used with the droppings there is less danger of overfertilizing the soil with them. The ashes absorb and hold fertilizing elements, and when they are worked into the soil they give up these fertilizers as plant foods and at the same time improve the texture of the soil, making it light, friable and easy to work. Absorbing material should always be used with poultry droppings, since it keeps the poultry house more sanitary and almost doubles the value of the manure.

Where not enough refuse about the home can be had to properly fertilize the garden during the winter we use the manure from any of the animal stables. In spring all the coarsest portion is raked off and hauled to the fields.—California Cultivator.

# The PACIFIC MONTHLY

has just closed the most successful and prosperous year in its history. We want to make 1911 even more successful than the year just passed. We want *your* name upon our subscription list. Here are a few facts which will help you to decide the question of subscribing,

¶ The Pacific Monthly is recognized as the most successful independent magazine in the West. It publishes each month artistic and unusual duotone illustrations of beautiful Western scenery, studies of Indian heads, or of animal life, ranging from Alaska, on the North, to Mexico on the South, and as far afield as Japan and the South Seas. From its striking cover design to the last page you will find a feast of beautiful pictures.

¶ Each month it publishes from five or six short stories by such authors as Jack London, Stewart Edward White, Harvey Wickham, D. E. Dermody, Seumas MacManus, Fred. R. Bechdolt, and other well known writers of short stories. Its stories are clean, wholesome and readable.

¶ Each month one or more strong articles are published by such writers as William Winter, the dean of dramatic critics, John Kenneth Turner, the author of "Barbarous Mexico", Rabbi Wise, the noted Jewish Rabbi, and John E. Lathrop, who contributes a non-partisan review of national affairs. Charles Erskine Scott Wood contributes each month under the title of "Impressions" a brilliant record of personal opinion.

¶ The Pacific Monthly has become noted for having published some of the best verse appearing in any of the magazines. Charles Badger Clark, Jr., contributes his inimitable cowboy poems exclusively to The Pacific Monthly. Berton Braley, George Sterling, Elizabeth Lambert Wood, Wm. Maxwell, and other well known poets are represented by their best work in our pages.

¶ A feature that has won many friends for The Pacific Monthly has been our descriptive and industrial articles. During the coming year one or more such articles will be published each month. Articles now scheduled for early publication are: "Money in Live Stock on the Pacific Coast", "Success with Apples", "Nut Culture in the Northwest", "Success with Small Fruits", "Fodder Crops in the Western States".

¶ In addition to these articles the Progress and Development Section will give each month authoritative information as to the resources and opportunities to be found in the West. To those who are planning to come West, the descriptive illustrated articles on various sections of the West will be invaluable.

¶ If you want a clean, fearless, independent magazine—one that will give you wholesome, readable stories, authoritative, descriptive articles of the progress being made in the West, a magazine that believes thoroughly in the West and the future destiny of the West—you will make no mistake in subscribing for the Pacific Monthly. Its subscription price is \$1.50 a year. To enable you to try it for shorter period, however, we will give a trial subscription of six months for \$0.50.

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## ORGANIZATION A VALUABLE PUBLICITY AGENCY

BY C. C. CHAPMAN, AT MEETING OF OREGON STATE HORTICULTURAL SOCIETY

HAD it done no more than to hold a session like this, which has been bringing out papers of the value of Mr. LaFollette's, to which we have just listened, the value of the Oregon State Horticultural Society to the State of Oregon as a publicity organization would certainly have been demonstrated. Of course, that is only the smallest part, in a way, of what it has done. I may add to the force of Mr. LaFollette's paper by stating that I have had the pleasure of visiting both his son's ranch and his own, away down on the Willamette River, near Wheatland, twelve miles this side of Salem. He has understated rather than overstated the possibilities of peach growing on many of the lands of the Willamette Valley, and the way he has put it has been so forceful, so conservative and carried so much conviction with it that I know, in our publicity matter which we are sending out, we shall take advantage of that and quote liberally from his paper, with a view to inspiring confidence in Oregon as a peach state as well as an apple state.

Now, I judge that some of the apple fairs—among which the Oregon Horticultural Society has been taking the lead for many, many years—some of the apple fairs must have been doing far more work toward getting Oregon advertised than the producers of any other product of the soil in Oregon. Mr. LaFollette mentioned that at the Oregon Development League meeting in Salem everything was apples, apples, apples. Now, as a matter of fact only about two per cent of the products of the soil raised in Oregon are apples.

Dr. Withycombe, of the State Agricultural College, estimates that in 1910 the value of the products of the soil of Oregon, farm produce included, amounted to more than \$115,000,000; of that only \$6,000,000 was fruit, and of that \$6,000,000 only \$2,000,000 was apples. If apples represent only two per cent and got about ninety-nine and forty one-hundredths per cent of the publicity down at the meeting of the Oregon Development League in Salem and at the Chicago Land Show and the National Apple Show held in Chicago, following the land show, and the National Apple Show just completed in Spokane—where Oregon apples have been capturing not only sweepstake prizes, but most of the advertising, it certainly indicates that the apple has been advertising Oregon. What we are afraid of is that possibly it is almost advertising too much, and that people are beginning to think that Oregon is not only an apple state, but that it is an apple state only; so the Oregon Horticultural Society certainly can take credit to itself for having done its work well.

They have been holding an apple show here in Portland for a great many years, as an accessory to the meeting of the State Horticultural Society, a splendid little show. Quality has been of the very best, and pains have been taken in the preparation of the fruit. This has resulted in a great deal of compliment

and praise. It has had influence in educating the people of Portland into recognizing what Oregon can do as an apple state. As a matter of fact, however, the incentive that has been held out to the growers to make this a great exposition has been absolutely lacking. Portland has been backward in that Portland business men—while some of them have risen to the occasion splendidly in adding to the inducements, and certainly deserve credit—the City of Portland, as a whole, does not deserve any special credit. We have been backward in Portland, there is no question about it, we have been traitors. We have let Seattle scoop us in some things and we have let Spokane scoop us badly in the fruit question, when they got the idea of a national apple show. Those of us who have been to Spokane have seen carload after carload and carload after carload of apples. They started the show in the Armory. That wasn't big enough, and they extended it to the street. That wasn't big enough, and they got a circus tent, a big Barnum & Bailey tent. That wasn't big enough, and they got a tent made to order. That wasn't big enough, and they extended out further and further, and covered up the streets. It was simply wonderful, and passes conception. Nobody has any realization of what that show was like unless he has seen it. Spokane beat us to it, and has got the National Apple Show, and so, to a certain extent, Portland has had to take a back seat. But there is something very comforting about this situation here in Portland, because the Oregonians have carried away the big prizes. While Spokane business men put up something like \$42,000 of their own money to make the Spokane Apple Show a success, it has been felt that the great result of the expenditure of their own money is the free advertising of Oregon. She got the advertising for having taken all of the great prizes from the city and state which was putting up for the expenses, so there are some joys, as you can see, in Portland's position today. We have had the benefit of the advertising. People believe it perhaps more readily when Spokane advertises the Oregon apples as sweepstakes of the nation than if Oregon herself advertised them as such. You know when we toot our own horn some people will say, "Blessed be he who tooteth his own horn, for otherwise it will not be tooted," but when others toot the horn for us it means something. With Spokane advertising the Oregon apples we have the advantage at a very low cost, but there is no reason in the world why we should simply drop it at that point. There may be a time when Oregon will not take all of the sweepstake prizes. In fact we may come to the point where it will be so thoroughly regarded as certain that Oregon will take the prizes that we may be asked to step aside for a while in the interest of the Northwest and give the Washington fellows a chance to make a showing.


We have really got to do something here in Oregon to get Oregon on the

map, not necessarily in competition with the National Apple Show at Spokane, but in a way that will give further identity to Oregon as an apple state. It seems to me that can be done in a way that Spokane has, fortunately, overlooked. Spokane has done a wonderful work in creating the National Apple Show, and we compliment Spokane on this great advertisement of the Pacific Northwest, and we certainly do not want Portland or any other city to have a "National Apple Show." Spokane has carried away the laurels, and is wearing the wreath, and we want to accord it to them with the hand of good fellowship and cheer them on their way, but that is no reason in the world why we

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It has been our good fortune to secure for the season 1911-12 scions from the following prize-winning orchards:

C. H. Sproat, Hood River, Oregon (winner of Sweepstakes prize, Spokane National Apple Show, 1910, and Chicago Apple Show, 1910, best carload of Spitzenbergs).

O. G. France, Wenatchee, Washington (winner of prize for Winesaps, Spokane Apple Show, 1908 and 1910).

Dick Hart, Toppenish, Washington (winner of prize for carload of mixed apples, Spokane Apple Show, 1910).

We have also secured selected strains and varieties from the orchards of Tedford Brothers and Green Brothers, Wenatchee, Washington (winners of plate prizes at Vancouver, B. C., Apple Show, 1910, and at National Apple Show, 1910); J. B. Holt, Pullman, Washington; W. E. Bowes, North Yakima, Washington; Bear Creek Orchards, Medford, Oregon, and others.

Our trees have the well-balanced roots and tops that skilled horticulturists aim to secure.

We grow exclusively, and are pleased to offer to planters for 1911-12 **Selected Trees of Certified Pedigree.**

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### ARE NOT TOO GOOD FOR YOU

Our stock has given such excellent satisfaction wherever planted that you cannot afford to do without it.

There's a reason, too:

A splendid location with  
Deep, red soil, well drained  
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Remember that the recollection of quality remains long after the price is forgotten.

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More salesmen wanted.

could not start in and create a great Oregon apple show. It seems to me that with the wealth we have here and the spirit we have throughout the state, and the energy we have and the experience we have, which produces the finest apples in the world, it ought to be possible for Oregon to put up an Oregon apple show that ought to excel the apple shows held elsewhere. I believe it is entirely possible for Oregon to become identified with the greatest apple show, not necessarily national, but the greatest apple show produced in the world, and simply call it the Oregon apple show. I do not think we should exclude exhibitors from other states; we ought to encourage them to come from everywhere, let them come from all over the nation. If they think, back East, that it is simply in the method of cultivation rather than in the climate let them bring their apples and carry away some of the Oregon premiums. Let us invite them to come here and see what they can produce to compare with what we have produced. We certainly want to encourage Montana, and Idaho, and Washington, and British Columbia to enter their products in the Oregon apple show, and let them take away the Oregon prizes if they can. We have scooped them in Vancouver, British Columbia; we have won the prizes in Spokane, and we don't want to adopt a niggardly policy and exclude any part of the West or of the nation from the Oregon show. We want to invite them in to compete, but let us make it our purpose to set up an Oregon

show that will be the apple show, and let it be named "The Oregon Apple Show."

The business men of Portland are beginning to see what is possible in way of an apple show. Sixty of them went to Spokane on one train and saw the National Apple Show, and they saw what was possible, saw how that great attraction was a drawing card from all of the Pacific Northwest, saw what it was worth as an advertising feature to Spokane, even though it was called the National Apple Show. It seems to me if Portland business men can be properly enthused they will put their hands in their pockets and enable the Oregon apple show to make a premium offering, which, so far as the value of its offering is concerned, will certainly entitle it to rank with Spokane.

The Spokane exhibits have been transplanted to Chicago. Chicago is a wonderful center. It is a city rather than a country town, and it has appealed to me that valuable to the Pacific Northwest as is the advertising of the Oregon apples and the Washington apples at Chicago—valuable as that is to the Northwest, still more valuable advertising could be done in what might be called the country cities. Take Omaha, for instance, the gateway to the great farming regions of Nebraska and Colorado, and, further, take St. Paul, Minneapolis, Kansas City, and even St. Louis, Missouri, which today ranks very, very high—I am not definitely informed, but possibly the highest. I know it did for a great many years rank the best in apple



production. Missouri and Southern Illinois were known for generations as great apple sections. St. Louis would be a splendid place in which to make a grand exhibit. It seems to me, from the point of view of advertising Oregon and advertising the apple industry of the Northwest, that the Oregon Horticultural Society, in connection with the apple growers, should take upon itself the greater purpose of moving the apple show through a circuit of the Western and Middle Western cities—farm cities—where, instead of great crowds of city bred people with just a sprinkling of farmers, instead of those just coming to see the show from curiosity, there would come in crowds the producers themselves from the farming centers, from the agricultural centers, towns like Sioux City, Iowa, and Aberdeen, Dakota.

If the Oregon apple show is perfected to the highest point, as I certainly think it will be, and if the prize winning exhibits can be taken back there to those cities, they will advertise Oregon and the Pacific Northwest even more than it is being advertised today by the National Apple Show in Spokane. These things, it seems to me, are entirely possible. The Horticultural Society is the agency through which this work can be taken up. Your president, Mr. Atwell, spent three months of this present summer and fall traveling around through the East, largely on the purpose of this organization. He went there not only with the prestige of being the president of this society, which commanded the confidence of people throughout the East, many of whom knew him personally, but he went with the backing of the commercial organizations of this city and state, of the Oregon Development League and the Portland Commercial Club. He was royally received and welcomed. The people felt that he had a message for them in telling about Oregon as an apple state. The newspapers printed columns of his interviews, and he advertised the state in that way. Most valuable of all, he acquired information as to the possibility of exhibiting Oregon fruits, and his views on these matters are worth more than you possibly realize. He is authority on the subject, and we look to him as a leader.

Let us all get together on this in the right spirit and with enthusiasm. Let every individual member of this society, every individual grower, realize that this will not only raise the standard of the industry, but it will advertise this section of the country as a better place in which to live. Sometimes we get the idea that the apple is being talked about too much, that we ought to talk more of livestock and the more staple industries, but it seems that the apple is the most valuable, in an advertising way, as an index of the climate. A perfect apple cannot be raised in any country where the climatic extremes are so great as they are in the Middle West.

This is a country of opportunity, of great resources, a country where a young

man can come with practically no means and find for himself a future. It is a country where anyone who has accumulated means can come in order to live instead of exist. In our advertising we have headed advertisements with the wording "Opportunities in Oregon," and we have headed other advertisements with the words "Mild Climate in Oregon," and it is the mild climate which seems to appeal to the larger number. The apple of the Northwest is today the great advertisement of climate, and a climate where the peach can grow is

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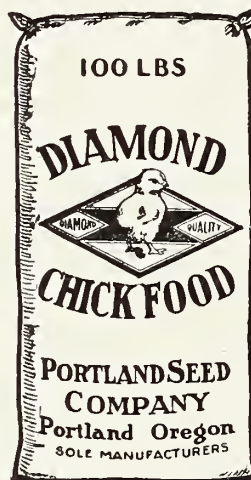
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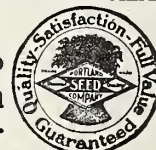
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The wonderful successful and superior quality of our "Diamond" Chick, Scratch and Egg Foods has caused them to be widely imitated, unscrupulous dealers going so far as to brand their product as "Diamond." Do not be deceived by these mixtures. If you are not already familiar with our Poultry Foods send at once for free samples. Compare them with others and note the "Diamond Quality." Insist that our name and "Diamond" trade mark appear on each package. It's your guarantee of real quality—the highest obtainable. "Diamond" Chick, Egg and Scratch Food is put up in 100 lb. bags, full weight. The genuine original "Diamond Chick Food is manufactured only by the Portland Seed Co.

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Get our new Oregon pamphlet—fully descriptive, with maps and illustrations—and details about fares and daily through electric-lighted Tourist Sleeping Cars over the "Scenic Highway through the Land of Fortune."

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Portland, Ore.

A. M. CLELAND, Gen'l Pass. Agent  
St. Paul, Minn.



## Northern Pacific Railway

even more attractive than the apple climate, so we do not want to overlook the peach. I will tell you that anyone who has been through these orchards of the valleys of the Willamette, and the Umpqua, and the Rogue and the Columbia know that they can raise beautiful peaches. It is simply a delight to see them and get one's teeth stabbed into one of those luscious fellows right off the tree, and to see how carefully they are handled and how carefully they are wrapped and packed—the peach industry itself is a great advertisement for Oregon. We don't want to forget the pear. Medford started a pear fair and scooped some other parts of the state. Down in Medford they say we cannot raise pears in the Willamette Valley, but I have tasted just as good pears in the Valley of the Willamette as I have ever tasted in the Valley of the Rogue. We don't want to forget the pear and the peach.

In the newspaper offices, when they have a lot of information coming in relating to some subject, they try to get one of the striking features in the headline at the top. The apple today is Oregon's headliner. Let us also support the publicity for the peach, let us get in behind the Medford Pear Fair and make it the success it deserves, and let us give credit to the Spokane National Apple Show, but let us not forget that right here in Oregon we have the opportunity to create one the greatest advertisements Oregon can have, and carry with it the name and identity of the state, "The Oregon Apple Show."

## THE NORTHWEST ASSOCIATION OF NURSERYMEN

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California—John S. Armstrong, Ontario; F. X. Bouillard, Chico; J. W. Bairstow, Hanford; Chico Nursery, Chico; Leonard Coates, Morgan Hill; California Rose Company, Los Angeles; California Nursery Company, Niles; Charles A. Chambers,

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Alabama—W. F. Heikes, Huntsville. British Columbia—F. R. E. DeHart, Kelowna; M. J. Henry, Vancouver; F. E. Jones, Royal Avenue, New Westminster; Richard Layritz, Victoria; Riverside Nurseries, Grand Forks; Royal Nurseries & Floral Company, Vancouver.

Colorado—J. W. Shadow, Grand Junction.

Idaho—Anton Diedrichsen, Payette; J. F. Littooy, Mountain Home; O. F. Smith, Blackfoot; Tyler Bros., Kimberly; J. C. Finstad, Sand Point; C. P. Hartley, Emmet; J. A. Waters, Twin Falls. Montana—Montana Nursery Company, Billings.

New Hampshire—Benjamin Chase Company, Derry Village.

New York—Jackson Perkins Company, Neward; McHutchinson & Co., New York; Vredenberg & Co., Rochester.

Pennsylvania—J. Horace McFarland Company, Harrisburg.

Tennessee—Southern Nursery Company, Winchester.

Utah—Harness, Dix & Co., Roy; Orchardist Supply Company, Salt Lake; Pioneer Nursery Company, Salt Lake; Utah Nursery Company, Salt Lake; Davis County Nursery, Roy.

## Hood River Valley Nursery Company

Route No. 3, Box 227

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WILLIAM ENSCHEDE, Nurseryman

H. S. BUTTERFIELD, President



## MAKING OF A SMALL FRUIT GARDEN A NECESSITY

From the Weekly Oregonian

EVERY farmer has a vegetable garden. Practically every farm has an apple orchard, while there are cherry trees along the fence rows and pears and plums about the barn and house. Just as these are considered a necessity on every well ordered farm, so a garden of small fruits is considered a necessity wherever the people have become accustomed to the luxury of having an abundance of fruit for daily use.

If we set out an orchard we must wait before it will produce much fruit, but we begin to eat of the small fruits the very next season after setting the plants. If we set strawberries this season we may expect a full crop next spring, and of raspberries a partial crop. Currants, raspberries and gooseberries will generally bear full crops the third year if good plants have been set out.

If there is a warm knoll a few rods from the buildings, says a writer in Greene's Fruit Grower, select it for the fruit garden. The ground should be well drained, that is, water must not lie in it, but is should not be soil which dries out and bakes in warm weather. Land sloping to the south or east is to be preferred for fruit growing when it can be secured. The one location on the farm to avoid is where the soil is cold and wet. Fruits will do no good in such a location. Buds and blossoms do not suffer as much from frost on slight elevations as on low grounds, hence we seek such places for our fruit. Lay out the garden in harmony with the buildings and the fields.

Give the ground a good heavy coating of stable manure, plow it under and grow a crop of corn or potatoes. Manure the ground and plow again. It should be cultivated thoroughly, and when dry it is ready to plant. Spring planting is well adapted for all small fruits, and is here recommended.

Plan a garden of a quadrilateral form, much longer than wide. For an acre garden, 400 feet long by 100 feet wide; a half acre, 300 feet by 72 feet, or a quarter acre, 175 by 45 feet. Let the rows be six feet apart and the plants four feet in the row. Having the length of the rows, the number of rows and the distance apart in the row, it is easy to calculate the number of plants of each kind which will be needed. Strawberries may be set fifteen inches apart in the row, the rows being three feet apart. If all the plants, except strawberries, are set so that they can be cultivated in two directions by the horse it will save much time and labor.

For strawberries only a shallow drill mark is made to indicate the position of the rows. The roots of the plants are carefully spread in a shallow excavation. There is no trouble in securing a good set of these plants if it is remembered that the roots of these plants must never be exposed to air or sun, that the plant must be set at same depth as it stood before moving, and, lastly, that the earth must be thoroughly composted about the roots.

For the other small fruits furrow the land out to a good depth. Drop the plants in the rows at four feet, and with

a hoe and the feet cover and tramp the plants well into their places. Currants and gooseberries will need to be set deeper than raspberries and blackberries. Buy only first class plants from reliable dealers. No stable manure should be placed in contact with the roots of bushes at planting time.

Give clean cultivation, just as corn or potatoes need, no more, no less. Do not let a weed grow, and keep the ground always stirred until the growing season is over.

After setting strawberries should have all the blossom branches and all the runners pruned away, as they appear until August. This will give good, strong plants. After planting the raspberries and blackberries cut off all the tops at about a foot above the ground. When the new tops are about four feet high they should be cut off. This will give sturdy plants, able to stand up without stakes. After bearing the old canes are cut out, as they bear but once. The suckers should be cut down as they appear. Currants and gooseberries should have a large portion of the shoots cut out each spring. This will throw all the strength into fewer branches and give finer fruit.

The beginner is advised to plant only such hardy varieties as have been proved of value in his neighborhood, and not to need winter protection. This is true of all small fruits except strawberries, which may be covered with leaves, clean straw or corn fodder after the ground is frozen, in the early winter. The best mulching for all small fruits, except the strawberry, is thorough cultivation, as is given to corn and potatoes.

Almost the whole world knows of Hood River as a place that produces the best fruits, and all of Hood River Valley should know, and could know, that there is one place in Hood River, under the firm name of R. B. Bragg & Co., where the people can depend on getting most reliable dry goods, clothing, shoes and groceries at the most reasonable prices that are possible. Try it.

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ORCHARDS AND GARDENS



An Effective

## EXTERMINATOR

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Crest Spray is a soluble or miscible oil and mixes readily with water. It remains in solution, forming an emulsion.

It is non-poisonous and harmless to operator.

Requires no boiling or preparation like the Lime-Sulphur.

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### OREGON APPLE ORCHARDS CO.

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**EXPERIMENTS IN APPLES AND PEARS.**—The department of horticulture at the Oregon Agricultural College is doing pollenation work on an extensive scale in apple and pear orchards this year near Medford and Hood River. Four men—R. W. Reese, assisted by J. M. Spidel of Edmund, Oklahoma, Ray Roberts of Lebanon, Linn County, and C. C. Thompson of Hood River—have been at Medford experimenting on crossing, in the orchards there, and studying various problems concerning the setting of pears and apples. A corps of the college men will shortly go to Hood River to take up the study of some special problems there. For three years work has been done on problems as to sterility and fertility of apples there, and the mutual affinity of all the leading varieties up there. This year special difficulties in handling Spitzenbergs will be taken up. Trees of varying vigor will be studied to learn what influences such conditions as their fertility or sterility. For the first time work will be conducted at Freewater and in the Milton district, and a part of the Walla Walla Valley. The problems will be in connection with the special fruits grown in that region to determine whether the climatic conditions there cause any variations from data already collected in other regions. Special studies are to be made of the Jonathan, Rome Beauty and Winesap apples. At the home station at the college E. J. Krause, assisted by others of the horticulture department, is going to conduct elaborate series of studies and experiments. Their work is to be more along the line of bud study, as to the development and differentiation of apple buds. Professor V. R. Gardner has started a series of studies of the blossoms of the prune and cherry along the line of preliminary studies of breeding work he hopes to take up this coming year with these fruits. We shall first determine the fertility or sterility of the leading varieties of cherries and prunes. From the studies obtained we hope to get a certain percentage of seedlings which indicate the stability and unit characters of these varieties. J. D. Griffin of Astoria, Clatsop County, a junior student, will assist Mr. Gardner.

### Berry Boxes and Crates

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Free on request. Write now, mentioning this paper.

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Shows proper strength for Spraying Trees

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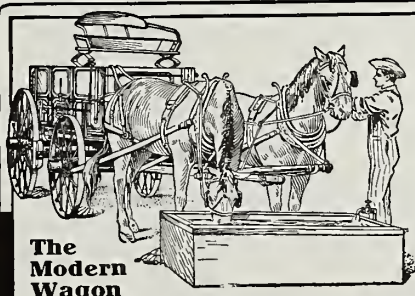
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Protects your trees against rabbits, mice and other tree gnawers; also against cut worms, sun scald, and skinning by cultivation. Cost is but a trifle. The value of one tree is more than the cost of all the Hawkeye Protectors you will need. Write for prices and full description.

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## EXPERIENCED HORTICULTURAL MEN IN DEMAND

**T**HE great demand for trained men in the horticultural world is well illustrated by the fact that the head of the department of horticulture at the Oregon Agricultural College, Professor C. I. Lewis, has had thirteen calls for graduates to fill positions of importance on large fruit ranches owned by wealthy corporations and individuals within the past month which he is unable to satisfy because all of the graduates are either conducting fruit ranches of their own or have already obtained profitable situations.

A large corporation in Maryland, controlling several thousands of acres in orchards, is contemplating putting in some thousands of acres more in fruit trees, and has applied to Professor Lewis for a man of sufficient experience to demand a salary of \$2,500.

An Eastern university wrote Professor Lewis recently asking him to recommend a man for the position of head of the department of horticulture there.

A foreman for the combined holdings of two of Portland's leading business men who have large fruit ranches in the Willamette Valley has also been asked for from among the college graduates.

One of the largest development companies on the Pacific Coast, having thousands of acres in their holdings, and making extensive developments involving the expenditure of enormous sums of money, wants an O. A. C. graduate as superintendent of their work, and will give \$2,000 to the right man.

From Eastern Oregon there has come a call for a foreman to take charge of some 6,000 acres held by a syndicate of thirty Dakotans, to see to the planting of orchards, spraying, irrigation work and to carry the entire responsibility for the welfare of the enterprise.

An immense Eastern concern, representing over a million dollars in capital, is now making extensive developments in various parts of Oregon, and is asking the college department of horticulture for a superintendent for 10,000 acres of orchards that are among its holdings.

In the Yakima Valley, and in other parts of Washington, there are large tracts of fruit lands held by a Seattle firm which is writing Professor Lewis for an orchard superintendent.

A call has been received for a graduate of the college who will go east to Ohio and install Pacific Coast methods in large orchards near Cleveland.

Some 900 acres in Western Washington are owned by a Portland corporation which has asked for a college man to become foreman.

The Canadian Department of Agriculture, which gave an appointment to an Oregon Agricultural College graduate last June, is now calling for another.

A man who has been waiting for six months for an O. A. C. graduate to take charge of a hundred-acre walnut grove he owns near Springfield, Oregon, has announced that he is coming to the college soon to make a personal effort to secure someone, and Professor Lewis has said he must give him a man from this year's short course, since there are no others available.

Other openings with florists, or as head men in greenhouses, are also to be filled, and if there were fifty or a hundred graduates from the college every year they could all be placed advantageously, there is so great a demand for men with Western training and experience. Most of the men graduated in the past are on orchards of their own which are paying so well that they cannot afford to leave them to accept a salaried position. The rest are already placed advantageously, and thus are not available for appointment.

At the first of July last year the college department of horticulture had

refused twenty applications for graduates to fill good positions, being unable to supply the men. Sometimes requests come from men in the East, asking that positions be found for them, but the demand is for men of Western experience, whom Professor Lewis can recommend from personal knowledge.

The college needs men for its own experiment station work. If the legislature, now in session, grants the appropriations requested for the establishment of new branch stations the college will need nine more men for this one branch of the work alone next June.

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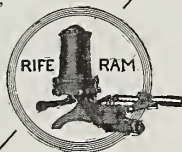
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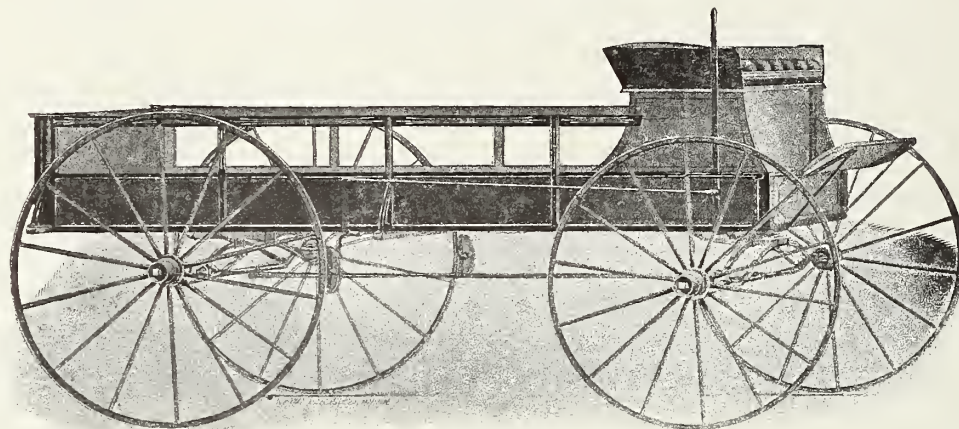
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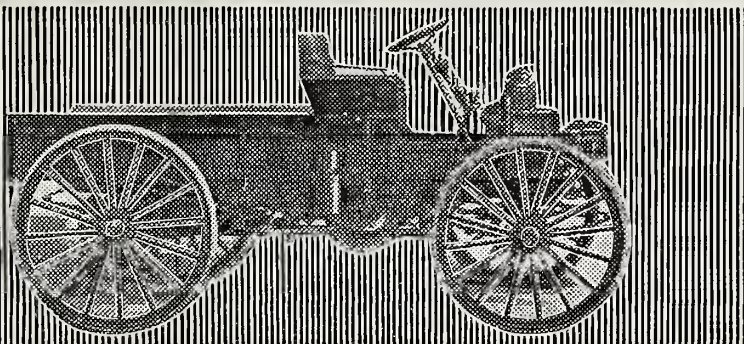
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## ORCHARD CULTIVATOR



### THE FORKNER LIGHT DRAFT HARROW

is the only perfect light-running wheel cultivator ever offered for orchard work. Each section is so easily manipulated with levers that a small boy can operate it and cultivate perfectly 30 acres per day with one team of medium weight. With this harrow one team can easily do the work of two teams with ordinary harrows. Works well in stumpy or stony land and does not clog with loose grass, roots, etc. Its extension of 11 feet, 3½ feet each side of the team, enables perfect dust mulching near the tree trunks without disturbing the branches or fruit, and eliminates the use of the hoe. One machine will work 100 acres of orchard and keep it in garden tilth. These machines are labor savers and will reduce your cultivating expense one-half, even if you have but five or ten acres of orchard. Write today for prices. LIGHT DRAFT HARROW COMPANY, Marshalltown, Iowa.

## HEMINGWAY'S

Is the lead arsenate of the expert fruit grower. It is widely used in all of the famous fruit growing districts. Made in a factory which has specialized in arsenical manufactures for over 30 years, it has the advantage of this long experience in its preparation for the use of the discriminating fruit grower.

## Hemingway's Arsenate of Lead

### THE PERFECT PRODUCT

Possesses miscibility with maximum sticking power. Is 20% stronger than the federal law requires.

Send for booklet giving full directions for the use of Hemingway's Lead Arsenate against all biting insects.

**KERR, GIFFORD & CO., Portland, Ore.**  
Coast Agents, who carry full stocks

**HEMINGWAY'S LONDON PURPLE CO. LTD.**  
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## Stranahan & Clark

DEALERS IN

Commercial Fertilizers  
Land Plaster, Lime  
Plaster Paris, Cement  
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HOOD RIVER, OREGON

## ORCHARDIST SUPPLY HOUSE

FRANZ  
HARDWARE CO.

Hood River, Oregon

## STORAGE

Ship your Furniture to us  
to be stored  
until you are located

Transfer & Livery Co.

Hood River, Oregon

## Burpee's Seeds that Grow

140 VARIETIES ANY QUANTITY

Plenty of stock in our 40,000 pounds

Growing Plants as season requires

All makes high grade

Pruning Tools

Garden Tools

Hose and Spray Nozzles

International Stock and

Poultry Food

International Remedies

Incubators and Brooders

Everything for Building

Everything for Furnishing

Stewart Hardware &amp; Furniture Co.

22,000 feet floor space. Hood River, Oregon

## YAKIMA COUNTY HORTICULTURAL UNION

North Yakima, Washington

C. R. Paddock, Manager

Apples, Pears, Peaches, Cherries,  
Plums, Prunes, Apricots, Grapes  
and Cantaloupes

Mixed carloads start about  
July 20. Straight carloads in  
season. Our fruit is the very  
best grade; pack guaranteed

We use Revised Economy Code

## HEADQUARTERS FOR CENTURY SPRAY PUMPS

Hose, Nozzles, First-  
class Plumbing Supplies

C. F. SUMNER

Successor to Norton &amp; Smith

HOOD RIVER, OREGON



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## Who Was There Whom You Knew

Look with care at this ghostly picture—this strange old Civil War photograph. Perhaps among these Union soldiers about to venture into Petersburg—or among the besieged Confederates who tensely waited for the fire of this gun—which roared destruction just after this photograph was taken—perhaps, in that dread place, some one near and dear to you moved and fought and fell.

To every American who gazes on a scene like this comes a sense of his own heritage, for the great Crisis that tested both North and South found neither wanting in skill or courage, and made our national Government, our unity, brotherhood and character.

But where did we get that war photograph? Why do we print it here? That makes a story in itself; for in securing this picture we secured three thousand five hundred more—an astonishingly vivid panorama of the greatest struggle in modern times.

We will send you that story, well printed and illustrated by more pictures. Read this:

18 of these **FREE**  
Pictures

For the Cost of Mailing

To give you some idea of the bigness of this work we have chosen 18 of the photographs at random, reproduced them carefully and enclosed them in a handsome portfolio. These 18 we will send you free if you send only 10 cents for the cost of mailing. Even these samples will be valuable acquisitions.

When the public has realized the wonder of this discovery, we will no longer give pictures away. So you had better send the coupon at once and make sure of this splendid addition to your library.

## How We Got the 3,500 Unique Civil War Photographs

From Sumter to Appomattox, a camera and a dark room, under protection of Allan Pinkerton and the Federal Government, accompanied the armies and the navies through the Civil War. The 3,500 photographs taken were bought by the United States Government for \$27,840 and promptly buried in the War Department, an important part of our secret records. But the great camera genius who took the photographs kept a duplicate set for himself. When he died, these too were lost—until nearly fifty years after the war they were found again. How they were taken—how they were lost—how they were found again—how the REVIEW OF REVIEWS secured them, is a wonderful story that can't be told here.

But read the panel and send the coupon at once and you'll get the whole story.

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Name

Address

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FRUIT  
6-11

REVIEW  
OF REVIEWS  
COMPANY

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Send me, free of charge, the 18 prints of your newly discovered Brady Civil War photographs, ready for framing and contained in a handsome portfolio. Also send me the story of these photographs and tell me how I can get the whole collection for the value of one photograph. I enclose 10 cts. to cover cost of mailing.



# Seeds

THE KIND YOU CAN'T KEEP IN THE GROUND

They grow, and are true to name.  
Write for prices on your wants.

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**J. J. BUTZER**

Portland, Oregon

Poultry Supplies, Spray, Spray Materials, Fruit Trees, Etc.

J. M. Schmeltzer, Secretary

**Hood River Abstract Company**

Hood River, Oregon

ABSTRACTS INSURANCE  
CONVEYANCING



## PARRY Pressed Steel Buggies

**Practically Indestructible—Made  
of Super-Hardened Pressed Steel**

Bodies and Seats made of same material that is used for automobile bodies. Buy a Parry Pressed Steel model and you will never be troubled with panels

splitting—no opening of corners—no plugs coming out. Metal bodies withstand intense strains. Proven by extremely rough usage given automobiles. *The Parry Pressed Steel Buggy is the latest achievement in the carriage building industry.* Body being made of steel, has a very smooth surface and takes a very high and lasting finish. They are much neater in appearance and give far greater service than the wood bodies. *The Parry stands strains that would wreck a wood body buggy.* Notice the beautiful lines of the twin auto seat, made from a single piece of steel.

Gear, wheels and upholstery of the very best quality and design. Yet with all of the advantages the Parry is but a trifle higher in price than the wood body buggies. You will be interested in a series of comparative tests that have been made to prove the tremendous sustaining qualities of the Parry. We will send these illustrated tests and the Parry catalog to those who write for them.

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## S. E. Bartmess

UNDERTAKER AND  
LICENSED EMBALMER

For Oregon and Washington

Furniture, Rugs, Carpets  
and Building Material

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## Paste for Labeling

"PALO ALTO" PASTE POWDER

added to cold water, instantly makes a beautiful, smooth, white paste. Ready for immediate use at a cost of ten cents a gallon. No labor. No muss. No spoiled paste.

Paste Specialists

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## VEHICLES AND AGRICULTURAL IMPLEMENTS

THE BEST OF  
ORCHARD AND GARDEN TOOLS  
A SPECIALTY

**GILBERT - VAUGHAN  
IMPLEMENT CO.**

HOOD RIVER, OREGON



# WASHINGTON NURSERY NEWS, JUNE, 1911



Our Planting Crew Setting Apple Grafts, March, 1911

Our 1911 plant contains in grafted and budded stock:

Apple .....	3,375,000
Pear .....	265,650
Peach, Cherry, Prune, Plum, Apricot, Quince, etc. ....	502,850

Grand total.....4,143,500

Above are the total fruit trees, grafted and budded, for sale fall 1911 and spring 1912, and does not include our berries, grapes and small fruit, nor our large block of ornamentals, such as roses, shrubbery, shade trees, climbing vines, etc.

## SEEDS

In addition to the above we have planted:

Peach pits .....	5 tons	5 acres
Cherry pits .....	5 bushels	3½ acres
Apple seed, French Crab....	90 bushels	60 acres
Pear seed, French .....	3 bushels	3 acres

These seed are planted to produce stock on which to graft and bud next season.

The apple seed plant is the largest ever made west of Topeka, Kansas, the great seedling center

of the United States, and with a normal stand means **nine million seedlings**. It is a little early yet to estimate our quantity, but there will be a fine lot of first-class seedlings.

## SEEDLINGS

We also have lined out for budding purposes, summer 1911:

Apple .....	500,000
Pear and other stocks.....	200,000

## Our Apple and Pear Trees

Are this year grafted on seedlings of our own growing, and are as a consequence in the best of condition.

We finished a most satisfactory delivery spring 1911 and have another large number of satisfied customers to add to our already long list. Our 1911 catalog is off the press. Our salesmen are in the field booking orders, and we are ready for yours.

If our salesman has not yet seen you, drop us a line.

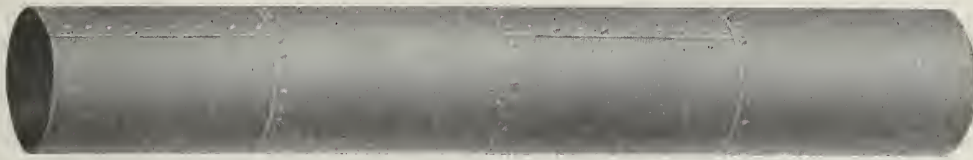
Yours for good trees, true to label, clean, well rooted, fully matured, delivered in good condition.

# Washington Nursery Co.

TOPPENISH, WASHINGTON



# ANYTHING IN SHEET STEEL



STEEL PIPES SAVE WATER

STEEL PIPES SAVE LABOR

YOU DO NOT HAVE TO WAIT FOR STEEL PIPES TO  
"SOAK UP" AND THEY LAST INDEFINITELY

WE MANUFACTURE

Galvanized Steel Pipe

Storage Tanks

Galvanized Steel Culverts

Pressure Tanks

Asphaltum Coated Pipe

Steel Flumes

Columbia Hydraulic Rams

COLUMBIA ENGINEERING WORKS, Portland, Oregon



A sample of our yearling trees,  
the "Nunbetter" kind

## Do You Expect to Buy Any Trees this Year ?

If so, then let us send you our literature explaining and illustrating our superior trees and how they are grown. You might just as well have **PROFITABLE** trees on your land as **UNPROFITABLE** ones. The difference in cost is only slight and the first crop will more than pay the difference.

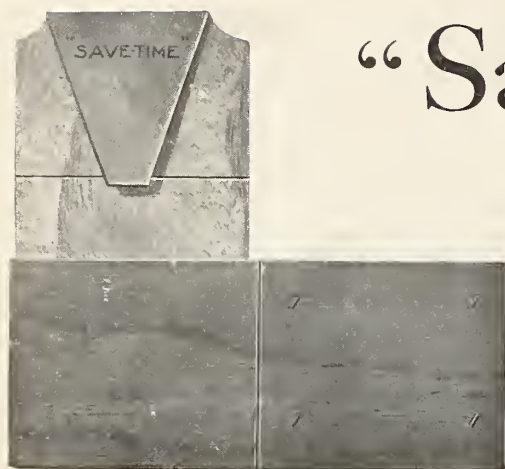
We have letters from customers stating they have picked over half a box of apples per tree on trees planted only two years; and this is not an occasional tree, but runs uniform through hundreds of trees. When you have good fruit land, plant good trees.

The fact that we supplied more planters with their trees last year than in any one of the previous forty-four years the **OREGON NURSERY COMPANY** has been furnishing "Nunbetter" trees, is some favorable evidence, at least, as to the universal satisfaction **ORENCO** trees give planters, and this year will be no exception. Having the largest plant—and what is conceded the best equipped plant in the West—you can get all you need from one source. Just remember that the **OREGON NURSERY COMPANY, OF ORENCO, OREGON**, handles the best of everything in the nursery line, and that you will receive full value and courteous treatment when buying of us.

Openings for Just a Few Upright  
Industrious Salesmen

**Oregon Nursery Company**  
ORENCO, OREGON





AS IT COMES FLAT

# "Save-Time"

SIMPLY PERFECT

## Folding Berry Box

Made from Pacific Coast Spruce



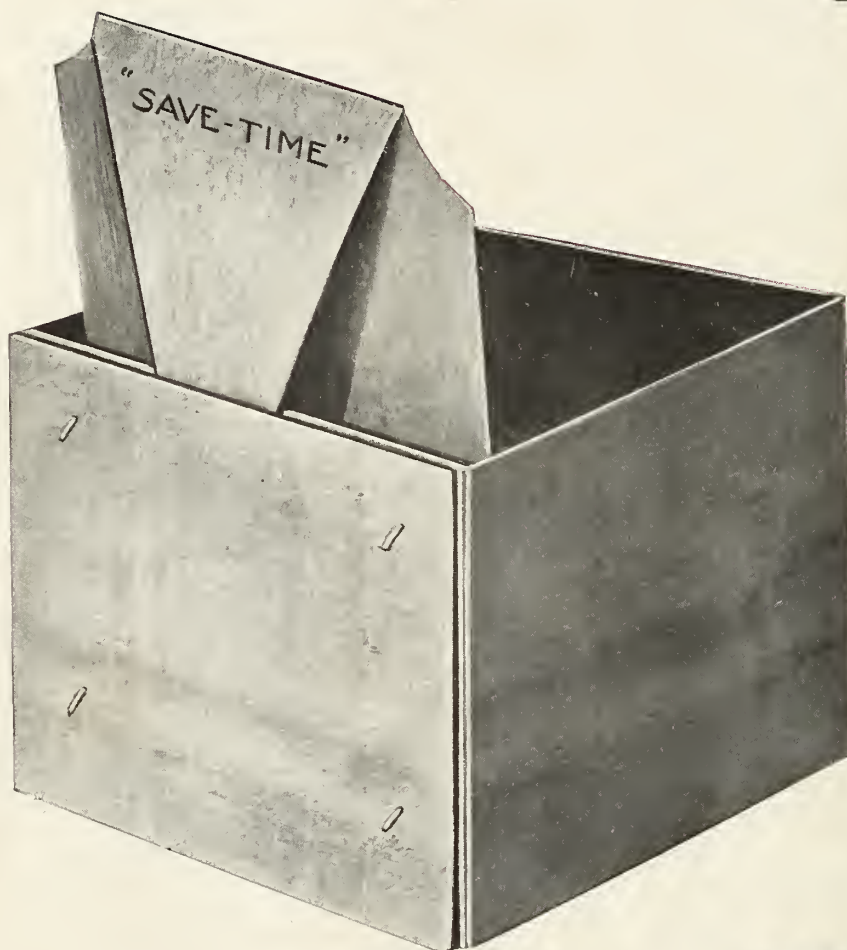
AS IT OPENS

DON'T STAPLE  
SAVE YOUR TIME  
WHEN YOU  
NEED IT

PICKERS WILL  
SET UP THIS BOX  
IT IS SO EASY

PACKED  
THREE BUNDLES  
TO A  
THOUSAND

ASK YOUR  
DEALER OR WRITE  
OUR AGENTS  
OR US AND DO IT  
EARLY



EASILY MADE UP

NO BREAKAGE  
OR WASTE

SOLID ONE-PIECE  
BOTTOM

VERY RIGID

NO STAPLES  
IN CONTACT WITH  
CONTENTS

REMAINS IN  
PERFECT POSITION

AS IT FASTENS DOWN

MANUFACTURED BY

## Pacific Fruit Package Co.

Raymond, Washington

H. B. HEWITT, Pres. and Treas.

J. H. HEWITT, Vice Pres.

O. C. FENLASON, Sec. and Mgr.

Agents Portland, Oregon, Territory:  
STANDARD BOX & LUMBER CO.

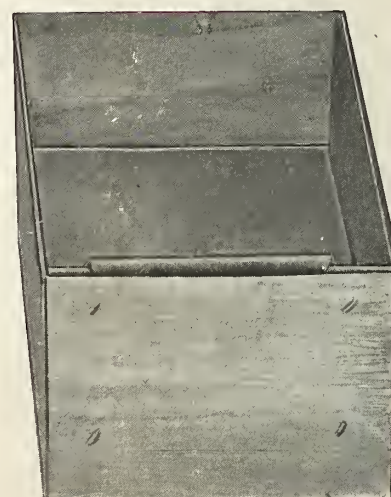
East Pine and Water Streets  
PORTLAND, OREGON

### WASHINGTON MILL COMPANY

Agents Spokane Territory

Spokane, Washington

WHEN WRITING ADVERTISERS MENTION BETTER FRUIT



AS YOU FILL IT























